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CONTENTS

TRANSBORDER ECONOMICS
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FROM THE EDITORS

In **Volume 7, No. 1** – *TRANSBORDER ECONOMICS International Journal on Transborder Economics, Politics and Statistics*, we would like to draw the readers' attention to Analysis of the enterprise sector in the Polish economy, with particular emphasis on the SME sector, Student activity in the labour market, Price discrimination in digital marketplace: an analysis of Purchasing Power Parity (PPP) and digital arbitrage, The lipstick economy in Lithuania and Poland: trends and consumer behaviour. The authors highlighted a wide range of topics related to entrepreneurship, the labour market, and market trends.

The article by Olga Kaczor entitled *Analysis of the enterprise sector in the Polish economy, with particular emphasis on the SME sector* identifies and analyses the key developmental factors and barriers facing the SME sector in Poland during turbulent periods. Specifically, the study seeks to investigate how the investment activity of Polish SMEs evolved in response to the economic turbulence of the early 2020s and to determine the extent to which high levels of basic digitalization, such as broadband access, translate into the adoption of advanced technologies like Artificial Intelligence.

The paper by Natalia Wiatr *Student activity in the labour market* focuses on student employment during higher education and explains why many students decide to work while studying. The article presents the results of the author's own research.

The paper by Emre Vural examines price discrimination in *Price discrimination in digital marketplace: an analysis of purchasing power parity (PPP) and digital arbitrage*. This article aims to examine regional pricing in digital markets within the framework of purchasing power parity, and to explain the concepts of digital arbitrage and geo-blocking as a method of preventing digital arbitrage. The study contributes to the literature by revealing, through concrete data, how price differentiation policies trigger digital migration.

In the paper *The lipstick economy in Lithuania and Poland: trends and consumer behaviour* Paulina Pasierb, Dangira Malakauskaitė, Ernestas Veromej, Simona Robótka, Agata Pietruna, Martyna Kud and Aleksander Piechowski discus the "lipstick effect" through a survey of consumers in Lithuania and Poland. The aim of the article is to explore the lipstick economy in Lithuania and Poland, analysing consumer behaviour and trends while comparing the two markets.

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ANALYSIS OF THE ENTERPRISE SECTOR IN THE POLISH ECONOMY, WITH PARTICULAR EMPHASIS ON THE SME SECTOR

Olga Kaczor[1]

ABSTRACT

The Polish business sector, and in particular SMEs, is characterized by great diversity in terms of industries, size and level of innovation. After the political transformation in 1989, this sector has undergone a significant evolution, becoming one of the pillars of the country's dynamic economic growth. Enterprises are the core of every economy, playing a fundamental role in shaping competitiveness, dynamics, creating jobs and generating GDP. An in-depth analysis of the Polish business sector, taking into account its size, structure and evolution, allows for a more precise understanding of the mechanisms of economic growth. Particular importance is attributed to the SME sector (micro-, small and medium-sized enterprises), which is the engine of innovation and employment in Poland. Its adaptability and ability to quickly respond to market fluctuations make it a key element of economic stability. In addition, this sector influences the shaping of economic policy through participation in the legislative process and engagement in social dialogue. The condition and development of SMEs are closely linked to investments and the implementation of modern technologies, which consequently translates into increased productivity and competitiveness of the Polish economy on the international stage. The important role of SMEs in the development of local communities cannot be ignored, as they contribute to the creation of new jobs and support social initiatives. Their activities not only strengthen social capital, but also contribute to sustainable development, which guarantees the long-term prosperity of the entire country. This sector also currently shows significant growth potential, especially in areas related to digitalization, green transformation and regional specializations.

Key words: SME sector, Polish economy, analysis.
JEL: L10, L11, L20.

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1. Introduction

Enterprises constitute the bedrock of any modern economy, playing a pivotal role in fostering competitiveness, driving dynamics, creating employment opportunities, and generating Gross Domestic Product. In the specific context of the Polish economy, the sector of small and medium-sized enterprises (SMEs) has undergone a profound evolution since the political transformation of 1989, emerging as a primary pillar of the nation's robust economic growth. The SME sector is particularly significant as it serves as a catalyst for innovation and employment, not only in Poland but across the entire European Union. Its inherent flexibility and capacity to swiftly adapt to market fluctuations position it as a critical element of economic stability. Furthermore, as research indicates, the functioning of these enterprises is heavily influenced by the prevailing economic conditions and the broader business cycle of the state (Ligaj, Pawlos; 2021, p. 61).

Despite their fundamental importance, the Polish SME sector operates within an increasingly complex environment marked by rapid digitalization and global economic shifts. While the existing literature extensively documents the general role of SMEs in developing economies, there is a persistent need for a more nuanced analysis of their trajectory in the immediate post-pandemic period between 2020 and 2023. Recent studies have highlighted that the COVID-19 pandemic significantly impacted the operations of micro, small, and medium-sized enterprises, forcing a re-evaluation of their resilience and strategic adaptability. (Banasik 2023, p. 50). This era is characterized by the dual challenge of recovering from systemic shocks while simultaneously navigating the green and digital transformations.

The primary objective of this article is to identify and analyse the key developmental factors and barriers facing the SME sector in Poland during this turbulent period. Specifically, the study seeks to investigate how the investment activity of Polish SMEs evolved in response to the economic turbulence of the early 2020s and to determine the extent to which high levels of basic digitalization, such as broadband access, translate into the adoption of advanced technologies like Artificial Intelligence. Additionally, the research explores the most significant structural barriers, including complex legal regulations and financial constraints, that currently impede the growth and international competitiveness of these enterprises. By addressing these issues, this paper contributes to the field by providing a synthesized view of post-pandemic structural changes and highlighting the persistent gap between basic digital infrastructure and advanced technological integration.

2. Methodology

To achieve the stated objectives, this study employs a quantitative research design based on secondary data analysis. The research process is structured around a comprehensive review of the latest statistical data and reports provided by key national institutions, primarily focusing on the period from 2020 to 2024. The fundamental sources of information include the thematic reports on the state of the SME sector published by the Polish Agency for Enterprise Development (PARP) and the official statistical databases of the Central Statistical Office (GUS).

The analysis utilizes several key methodological tools to ensure a rigorous assessment of the sector. Descriptive statistics are used to characterize the size, industry structure, and legal forms of enterprises, while trend analysis is applied to investment expenditures and GDP contribution to identify longitudinal shifts and the impact of external shocks like the COVID-19 pandemic. Furthermore, a comparative method is employed to evaluate innovation levels across different sectors and between various enterprise sizes, ranging from micro-entities to medium-sized companies. This integrated methodological approach provides a data-driven understanding of the current state and future prospects of Polish SMEs within a transborder economic context.

3. Analysis of enterprises in the Polish economy

3.1. The enterprise sector in Poland – size and structure

The SME sector includes micro-, small and medium-sized enterprises operating in the territory of the Republic of Poland. In order to be able to determine the category of an enterprise in a simple way, the European Commission has clearly defined the criteria that form the basis for classifying Polish enterprises as SMEs. Detailed thresholds and ceilings for SMEs in the EU are presented in Table 1.

Table 1. Criteria for classifying companies

Company category	Number of employees	Annual turnover	Annual balance sheet total
Medium	< 250	≤ EUR 50 million	≤ EUR 43 million
Small	< 50	≤ EUR 10 million	≤ EUR 10 million
Micro	< 10	≤ EUR 2 million	≤ EUR 2 million

Source: user guide on SME definitions, (2015). European Commission, p. 11.

Table 1 shows that in order for an entity to be classified as a medium-sized enterprise, it must employ more than 50 and less than 250 employees and show an annual turnover of no more than EUR 50 million or an annual balance sheet total of no more than EUR 43 million. Subsequently, small enterprises include units employing fewer than 50 employees but more than 10. In addition, they must have an annual turnover of no more than EUR 10 million or an annual balance sheet total of up to EUR 10 million. Micro-enterprises, on the other hand, are characterized by employing fewer than 10 people and achieving an annual turnover of up to EUR 2 million or the same amount in the annual balance sheet total.

The total number of non-financial enterprises in 2023 amounted to 2,349,755 companies and decreased by 0.3% compared to 2022. Figure 1 shows the structure of these entities in 2023.

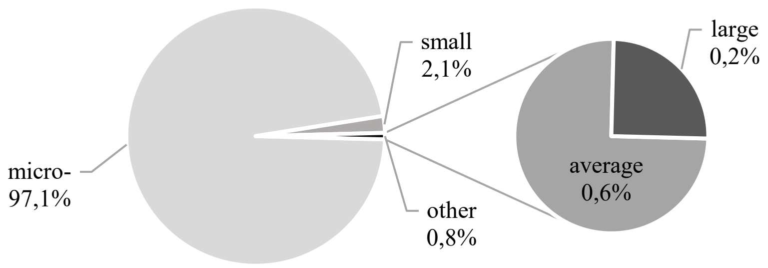

Figure 1. Structure of non-financial enterprises in Poland in 2023

Source: own work based on: Report on the state of the small and medium-sized enterprise sector in Poland (2024). Polish Agency for Enterprise Development (PFR group), p. 6.

As shown in Figure 1, the vast majority are micro-enterprises, which number as many as 2,283,379, which in turn gives a result of 97.10% of all enterprises in Poland. The remaining enterprises are small, accounting for 2.10%, and medium-sized enterprises, accounting for 0.20%. All entities of the SME sector in the Polish economy account for 99.8% of the total, because only 0.20% are large enterprises that are not included in this sector. This proves that this sector is extremely extensive.

Companies run different types of business and operate in different industries. A detailed industry structure of SMEs is presented in Figure 2.

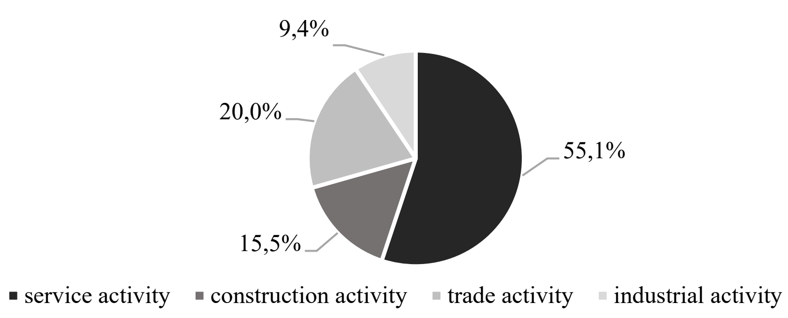

Figure 2. Industry structure of SMEs in Poland in 2023

Source: own work based on: Report on the state of the sector..., op. cit., p. 6.

As shown in Figure 2, the service sector plays a dominant role in the Polish economy, accounting for more than half (55.10%) of the other sectors. Commercial activity is at a similar level (20%), followed by construction activity (15.5%). The smallest share in the industry structure is the industrial sector – 9.4%. The situation is different when it comes to large enterprises. More than half of large entities conduct industrial activity, and a smaller part focus on service activities, trade or construction.

The SME sector can also be classified according to its legal form, where the dominant role is played by natural persons conducting business activity – 86%, of which as many as 99% are micro-enterprises. Legal persons and entities without legal personality constitute only 14% of all enterprises (Report on the state of the small and medium-sized enterprise sector in Poland, 2024).

3.2. Labour market

The corporate sector affects many aspects of the Polish economy. First of all, it plays a key role in creating jobs, which are the main source of employment, and in addition, they have a certain impact on economic and social stability. Figure 3 presents the development of the labour market in Poland in 2023.

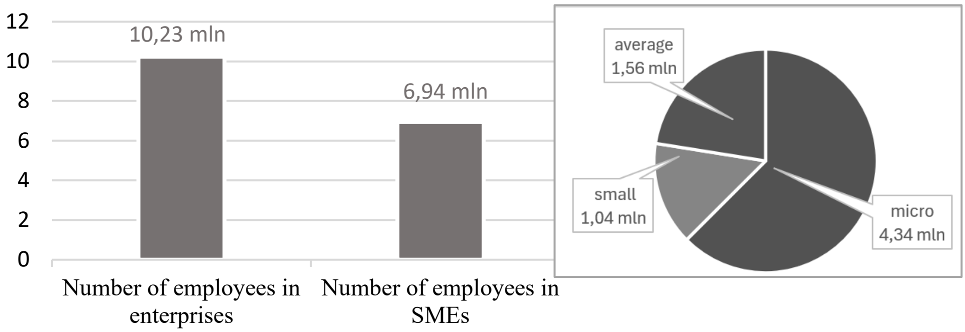

Figure 3. Shaping of the labour market in Poland in 2023

Source: own work based on the Report on the condition of the small sector..., op. cit., p. 7.

The number of employed, i.e. people performing various forms of professional activity, not necessarily related to formal employment, in SMEs accounts for more than half of the number of people working in enterprises, i.e. as many as 6.94 million people. In particular, micro-enterprises employ the largest number – 4.34 million people, which proves that despite their small scale of operations, they are extremely important in the labour market. This was followed by 1.56 million employees in medium-sized enterprises and 1.04 million in small enterprises.

On the other hand, the employed are "persons employed on the basis of an employment relationship for a definite period of time (including seasonal and casual employment) and indefinite, full-time and part-time, employees on individual farms in agriculture, and teachers who are inactive or on sick leave". In this case, the number of employees in enterprises in 2024 amounted to 7.03 million people. The share of the SME sector in the structure of average employment was 55.9%.

3.3. Gross Domestic Product

The SME sector is also responsible for generating a significant part of the Gross Domestic Product (GDP), a measure of "the total value of all goods and services produced in a country, usually over a course or quarter".

According to the latest report published by the Polish Agency for Enterprise Development (PARP) in 2024, the overall share of enterprises in GDP creation in 2021 was 67.9% (a decrease of 3.7 percentage points compared to 2020), of which the SME sector generates as much as 45.3% of Polish GDP (an increase of 1.7 p.p.) tags. (Report on the state of the small and medium-sized enterprise sector in Poland, 2024). Figure 4 presents a detailed share of this sector in shaping the Gross Domestic Product in 2020–2021.

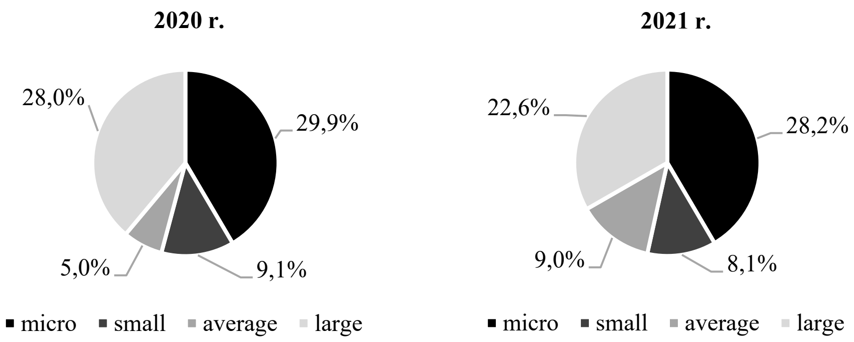

Figure 4. The share of the SME sector in GDP creation in 2020-2021
Source: own work based on the Report on the condition of the small sector..., op. cit., p. 6.

Taking into account the data presented in Figure 4, it is noted that a significant part of this sector is occupied by micro-enterprises, for which the share in GDP creation in 2021 fell by 1.3 percentage points compared to the previous year. This year, there was also a decrease in the case of small enterprises – by 1 percentage point and for large enterprises – by 5.4 percentage points compared to 2020. Only the share of medium-sized enterprises increased by 4 percentage points compared to the previous year.

3.4. Investments

The investment situation in Poland is relatively good. Detailed data are presented in Table 2.

Table 2. Investments in Poland in 2020-2023

Year / Investments in PLN billion	2020	2021	2022	2023
Total expenditure of enterprises	240.6	224.7	250.2	294.7
Capital expenditures	219.9	203.5	225.5	268
Purchase of used fixed assets	20.6	21.2	24.7	26.7
SME expenditures	105.1	99.6	109.65	122.81

Source: own work based on the Report on the state of the small and medium-sized enterprise sector in Poland, (2021, 2022, 2023, 2024). Polish Agency for Enterprise Development (PFR group), p. 7.

The total expenditures of enterprises presented in Table 2 decreased only in 2021 compared to the previous year, which may reflect the impact of the COVID-19 pandemic and numerous restrictions. On the other hand, since 2022, the number of investments has definitely been on an upward trend, reaching almost PLN 300 billion in 2023. A similar situation occurred in the case of the SME sector, which has also been growing since 2022, but at a slightly slower pace than the expenditures incurred by enterprises in general. A comparison of these two variables is presented in Figure 5.

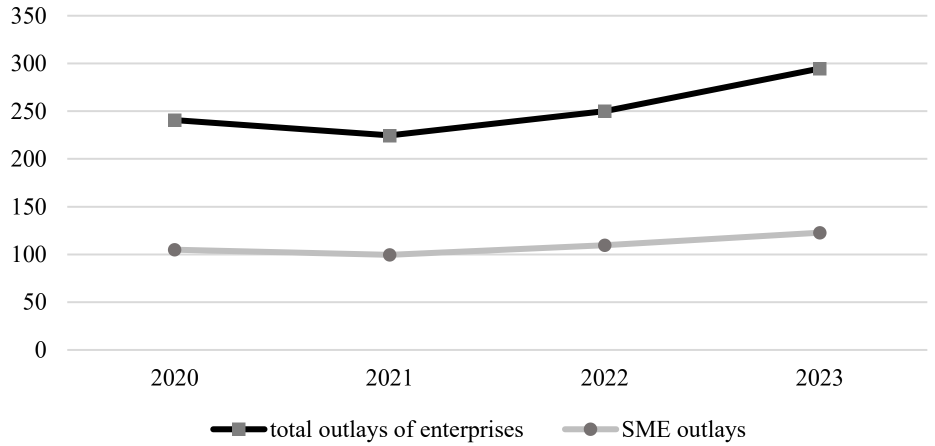

Figure 5. Total enterprise and SME sector expenditures in 2020–2023

Source: own work based on the Report on the state of the small sector..., op. cit., p. 7.

Table 3 provides a summary of data on investments in enterprises, with particular emphasis on the SME sector.

Table 3. Expenditure on property, plant and equipment of enterprises in Poland in 2023

Specification	Total enterprises	Big	SME		
			Micro	Small	Medium
Expenditure on property, plant and equipment, including:	**294 700**	**172 344**	**44 624**	**29 229**	**48 503**
- total capital expenditure	268 044	165 730	35 080	24 416	42 818
- expenses for the purchase of used fixed assets	26 656	6 614	9 544	4 813	5 685

Source: own work based on the Report on the state of the small..., op. cit., p. 7.

As shown in Table 3, the majority of entities making expenditures on property, plant and equipment are large enterprises, in which capital expenditures in 2023 amounted to PLN 165,730, and expenditures on the purchase of used fixed assets – PLN 6,614. Another group incurring high expenditures are micro- and medium-sized enterprises, whose results are in the range of PLN 45,000. The smallest amount of expenditure on property, plant and equipment is incurred by small enterprises – PLN 29,229, including PLN 24,416 for total capital expenditures and PLN 4,813 for expenditures on the purchase of used fixed assets. It is also worth noting that micro-enterprises are the entities in which expenditure on used fixed assets prevails.

3.5. Innovativeness

Businesses, especially those in the technology sector, drive innovation and technological development. They invest in research and development, introducing new products and services to the market, which increases the competitiveness of the Polish economy. According to the latest GUS research, which is illustrated in Figure 6, and does not include micro-enterprises, the innovativeness of enterprises in the service and industrial sector in general in 2020-2022 was at the level of 32.2%. This means that such a percentage of the surveyed entities implemented innovations, which is as much as 11.3 percentage points more than in previous years.

The average innovation rate over the years 2010-2017 was at a similar level, amounting to approx. 15%. Between 2016 and 2021, there were considerable fluctuations. Between 2018 and 2020, the average share of total innovative companies increased by 15.7 percentage points, followed by a decrease of 10.2 percentage points in the following years. Figure 7 shows the share of innovative enterprises in the industrial and service sector in the years 2010–2022.

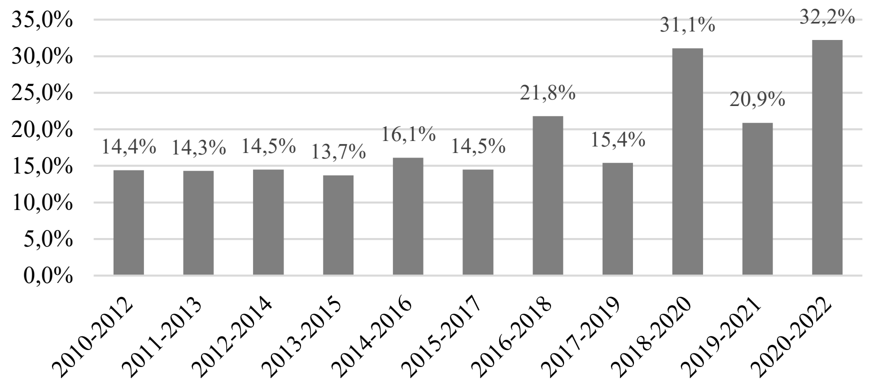

Figure 6. Average share of innovative enterprises in the total number of enterprises in the service and industrial sectors in 2010-2022

Source: own work based on the Report on the state of the small sector..., op. cit., p. 45.

As shown in Figure 7, in recent years the share of innovative enterprises in both the service and industrial sectors has been at a very similar level. The results differed by only 0.1 p.p. The situation was slightly different in previous years, where industrial enterprises gained the upper hand. Only in 2019–2021 did companies from the service sector dominate over the industrial sector, but not by a significant value.

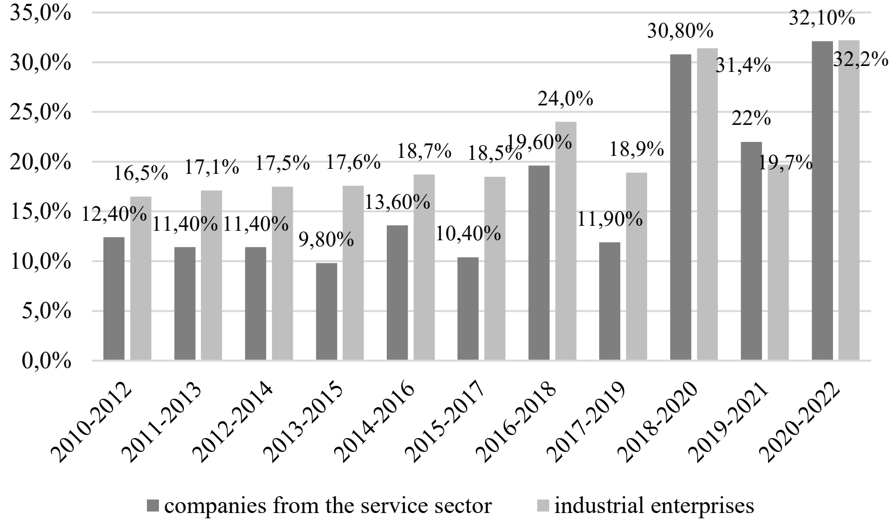

Figure 7. Participation of innovative enterprises in the industrial and service sector in 2010–2022

Source: own work based on the Report on the condition of the small sector..., op. cit., p. 46.

In 2020–2022, the highest percentage of innovative enterprises among industrial enterprises was recorded in the following sections:

- production of pharmaceutical products – 64.7%,
- production of coke and refined petroleum products: 54.8%,
- production of computers, electronic and optical products – 54.1%,
- production of chemicals and chemical products – 49.5%.

On the other hand, clothing production is one of the least innovative industries – 17.2%.

The following sectors of the service sector were characterized by the highest percentage of innovative enterprises:

- insurance, reinsurance and pension funds – 88.9%,
- research and development work – 62.2%,
- production of films, TV programmes and recordings – 61.0%,
- information services – 50.9%.

The least innovative business in this sector is the postal and courier business, with 24.5%.

Figure 8 compares industrial and service enterprises implementing different types of innovation in 2020–2022.

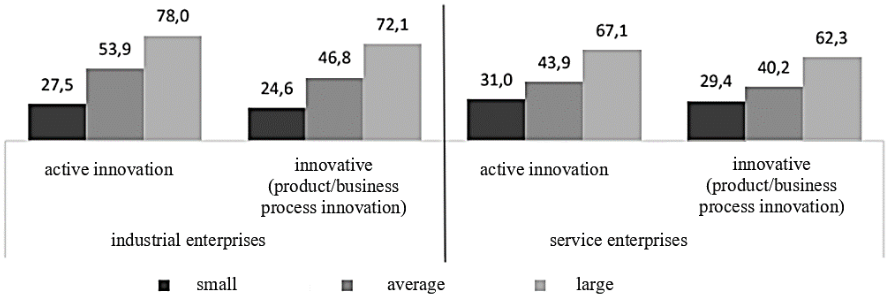

Figure 8. Innovative and innovation-active enterprises in the sector of industrial and service enterprises in 2020–2022 (in %)

Source: own work based on Innovative activity of enterprises in Poland in 2020-2022, (2023). Central Statistical Office (GUS)

As in the case of investments, product and business process innovations were mostly introduced by large enterprises. In industrial enterprises it was 72.1%, while in service enterprises – 62.3%. Digitalisation is one of the key areas where Polish SMEs have made significant progress. As many as 98.7% of companies now have access to broadband Internet and 67.3% have their own website, which is a significant step towards digital transformation. More and more companies are also using social media to communicate with customers – in 2023, it was 47.6% of companies. Artificial intelligence (AI) technologies are also being implemented by Polish SMEs, although still at a relatively low level – only 3.7% of companies use AI in their business processes. Nevertheless, the growing number of investments in digitalization and innovation indicates a positive trend that can contribute to the further development of the sector.

3.6. Difficulties facing the SME sector

Despite the generally positive indicators, the Polish SME sector operates under significant structural constraints. The primary obstacles include complex legal frameworks, administrative bureaucracy, and persistent limited access to external financing. Empirical data suggests a "credit gap," particularly for micro-enterprises, where difficulty in obtaining bank loans directly hampers investment in advanced technologies. Furthermore, there is a visible "digital paradox": while nearly 98.7% of SMEs have broadband access, only 3.7% utilize Artificial Intelligence in their business processes. This indicates that the barrier is no longer infrastructure, but rather a lack of specialized human capital and the high costs of advanced implementation. Competitive pressure from large corporations, which possess superior financial and technological resources, further necessitates a strategic shift for SMEs toward building unique, niche-based competitive advantages.

3.7. Development trends

The trends for the coming years include investments in eco-innovation and sustainable development, the further development of digitization and automation of various business processes, the development of exports and increasing the share of micro-, small and medium-sized enterprises in foreign markets, as well as greater institutional support and easier access to capital.

The future of the SME sector in Poland looks promising, and entrepreneurs who have the ability to adapt to new challenges and are able to use available support tools have a chance for dynamic development and strengthening their position both in the country and abroad.

4. Conclusions

The analysis of the Polish enterprise sector between 2020 and 2023 reveals a high degree of structural resilience despite significant external shocks. Micro, small, and medium-sized enterprises remain the backbone of the economy, contributing 45.3% to the national GDP and providing the majority of employment. However, this study identifies a critical developmental bottleneck: the transition from basic digitalization to advanced technological integration remains slow. The primary contribution of this research is the identification of the "Digital Integration Gap" in Polish SMEs. While basic digital infrastructure, such as broadband and social media, is nearly universal, the adoption of Industry 4.0 technologies, including AI and advanced automation, remains marginal. This suggests that future economic policies should shift from supporting general digitalization toward targeted incentives for high-tech adoption and R&D activities. To strengthen the sector's international competitiveness, it is necessary to simplify administrative procedures and improve the transparency of the legal system. The future growth of Polish SMEs will depend not only on their inherent flexibility but also on their ability to overcome capital barriers and successfully navigate the dual green and digital transformations.

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STUDENT ACTIVITY IN THE LABOUR MARKET

Natalia Wiatr[1]

ABSTRACT

This article focuses on student employment during higher education and explains why many students decide to work while studying. The topic is important because university studies are no longer only about gaining academic knowledge and completing a degree programme. For many young people, this period is also a time to earn money, gain first work experience, and become more independent in everyday life. Student employment is also linked to changes in the labour market, where employers increasingly value practical skills and previous experience. The article highlights that working during one's studies can bring both benefits and challenges. On the one hand, employment may support the development of useful competences such as responsibility, communication skills, and time management. On the other hand, combining work with academic duties may create difficulties related to limited time, tiredness, and stress. The second part of the article presents the results of the author's own research. The study was carried out using an online survey conducted between 2 and 16 May 2025. A total of 372 students from universities in the Podkarpackie Voivodeship (including Rzeszów) participated in the research. The survey explored students' employment during their current studies, their motivations for taking up paid work, and their opinions on how working may influence academic life. In addition, the questionnaire included questions about students' ability to balance studying with professional duties, as well as the reasons why some students decide not to work during higher education.

Key words: study, student employment, work during studies, labour market, motivation for employment.

JEL: J21, J22, J24, I23.

1. Introduction

Student employment during higher education is currently one of the most important social and economic phenomena related to the lives of young people. This is because studying is increasingly not only a period of academic learning, but

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also a stage when many students begin to participate in the labour market. They start earning an income, gain experience, and become more independent in everyday life. The literature highlights that student work can be treated as a form of non-academic activity that influences competency development and future career decisions (Bącik, Gawarkiewicz, and Siewicz, 2010). In this sense, employment may shape students' attitudes towards work, responsibility, and long-term planning.

The importance of the topic is also connected with changes in the labour market. On the one hand, employers often expect young candidates to present not only a diploma, but also practical skills and some experience. On the other hand, students may decide to work because of financial pressure, the wish to become more independent, or the desire to improve their competences (Krause, 2008; Wronowska, 2011). Therefore, student employment may be viewed in two ways: as a development opportunity and as a possible burden that can make academic life more difficult. This dual nature makes the issue particularly interesting and worth researching.

For these reasons, it is important to analyse the scale of student employment, students' motivations for taking a job, and the perceived consequences of work for studying. A key question is whether employment affects academic performance and whether students are able to balance professional and educational responsibilities. This article presents the results of the author's own research on student employment among university students from the Podkarpackie Voivodeship, conducted using an online survey.

2. Student employment – the context and importance of the phenomenon

Students constitute a unique group of participants in the labour market, as they combine the roles of students and employees. This means that their professional activity is often determined by class schedules, exam periods, and university requirements. Many students, therefore, choose jobs that can be tailored to their studies. The literature indicates that students take on various forms of employment, such as full-time and part-time work, seasonal work, or temporary work, allowing them to fit their professional responsibilities around academic life (Wronowska, 2011). In practice, this often means working evenings, weekends, or more hours during the summer holidays and fewer hours during exam periods.

At the same time, students are also important to employers. Many organizations view young people as flexible workers who can learn quickly and adapt to new tasks. Hiring students can also be beneficial, as it allows companies to train future employees and identify promising talent early (Bącik, Gawarkiewicz, and Siewicz, 2010). In this way, student employment can bridge the gap between education and long-term employment. It is also worth noting that student work is not just about earning money. It can be part of the process of transitioning into adulthood and taking responsibility for daily life. Work can influence students' independence, lifestyle, and social skills such as communication, teamwork, and responsibility (Zielińska, 2017). These skills can later become important assets in their professional lives, even if the work performed during their studies is not directly related to their field of study.

Motivations for working during studies vary, but many publications emphasize that financial considerations often play a major role. Working helps students cover living costs, improve their financial situation, and become more independent (Wronowska, 2011; Ostoja, 2016). This aspect is particularly evident when students incur higher costs for accommodation, transportation, and daily needs. For these students, employment is not just a choice but sometimes a necessity. These observations are consistent with the results of this study, in which financial need was the most frequently cited reason for students to work. This confirms that economic factors remain a key factor determining student labour market activity.

However, student work can also have developmental implications. Some students view employment as an opportunity to gain experience, acquire practical skills, and build competencies that can increase their competitiveness after graduation (Krause, 2021). In this case, work is viewed as an investment in the future. It helps students understand workplace expectations, familiarize themselves with professional routines, and verify whether a given career path matches their interests and aptitudes (Bącik, Gawarkiewicz, & Siewicz, 2010). Motivations related to gaining experience and developing skills remain relevant, as evidenced by current research, although they are less frequently mentioned than financial motives. This suggests that while developmental motives are present, they are secondary to economic needs.

Combining work and study can be beneficial. It can improve time management, self-discipline, and responsibility. Work can also boost self-confidence and help students feel better prepared for future professional roles (Bącik, Gawarkiewicz, and Siewicz, 2010). At the same time, combining work and education can create pressure. Too many work responsibilities can lead to fatigue, stress, and limited time for studying (Zielińska, 2017). In such situations, students may struggle to meet deadlines, prepare for exams, and complete academic projects. However, some students are able to develop effective strategies for balancing work and study, as evidenced by the study participants. However, negative effects have also been reported, supporting the notion that an excessive workload can lead to difficulties.

International studies also show that the relationship between student employment and academic performance is not straightforward. A meta-analysis suggests that work can have a neutral, positive, or negative impact, with one key factor being employment intensity, such as the number of hours worked per week (Kroupová, 2021). This means that student employment does not automatically reduce academic performance, but it can become a real barrier if the workload is too heavy.

Taking into account the above considerations, it can be assumed that student employment is a complex phenomenon influenced by both economic and developmental factors. However, the scale and specific characteristics of this phenomenon may differ depending on the region and group of students. Therefore, it is justified to conduct empirical research that allows for a more detailed analysis of student employment in a specific context. The following section presents the results of the author's own study conducted among students in the Podkarpackie Voivodeship.

3. Author's research – characteristics and results

In order to examine student employment during the studies and the factors influencing it, an online survey was conducted. The research took place between 2 and 16 May 2025. A total of 372 students from universities in the Podkarpackie Voivodeship, including Rzeszów, participated in the study.

The questionnaire consisted of 24 questions. It included demographic questions and questions concerning students' experiences and opinions related to paid work during their studies. In the surveyed group, women made up around two-thirds of respondents. The largest age group was 21–23 years old, which is typical for students at this stage of education. Most respondents studied full-time, and both Bachelor's and Master's students were included. This structure makes it possible to consider student employment across different stages of higher education.

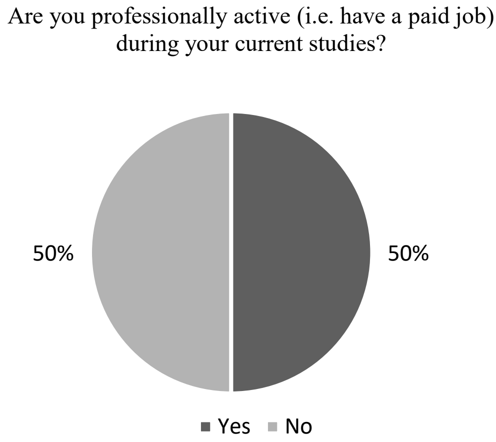

Figure 1. Employment status of students during current studies

Source: own work.

A key question in the survey asked whether respondents currently had paid employment. The results show an equal distribution: exactly half of the students worked during their studies, while the other half did not. This indicates that employment is common, but it does not apply to all students. It also suggests that students may follow different strategies during the university period.

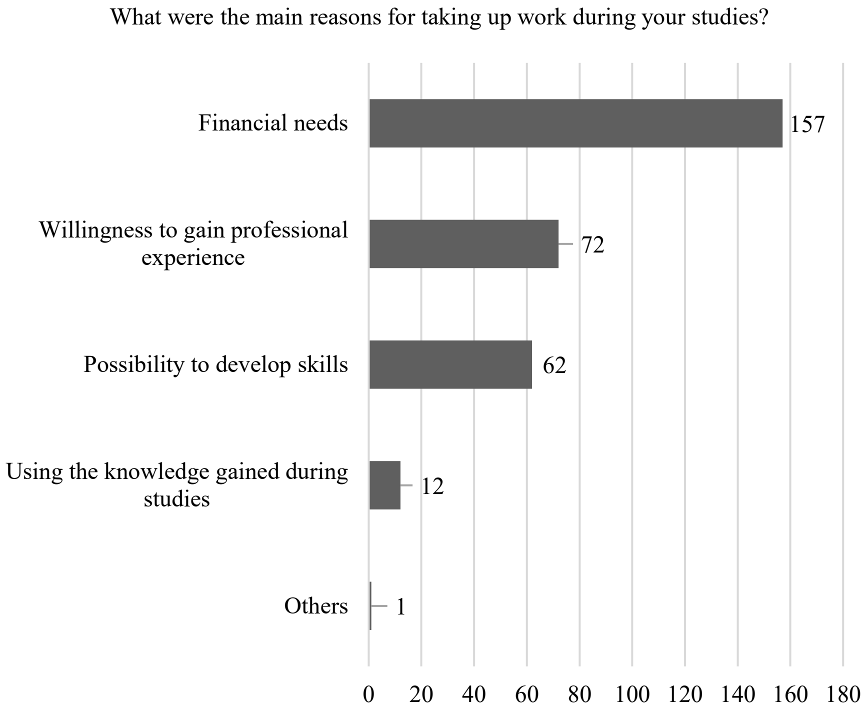

Figure 2. Main reasons for taking up paid work during studies
Source: own work.

Another part of the survey focused on motivations for taking a job. Respondents could choose up to three answers. Financial need was clearly the most frequently reported reason (157 responses). Other motivations were much less common, including gaining experience (72 responses) and developing skills (62 responses). Only one respondent selected "other" and explained this choice as having a lot of free time. Overall, this suggests that for many students, employment is mainly a financial solution, while career-building motivations are present but less dominant. This result confirms the findings presented in the literature, where financial factors are identified as the main reason for student employment (Wronowska, 2011; Ostoja, 2016). It suggests that the economic aspect of employment remains dominant also in the analysed group.

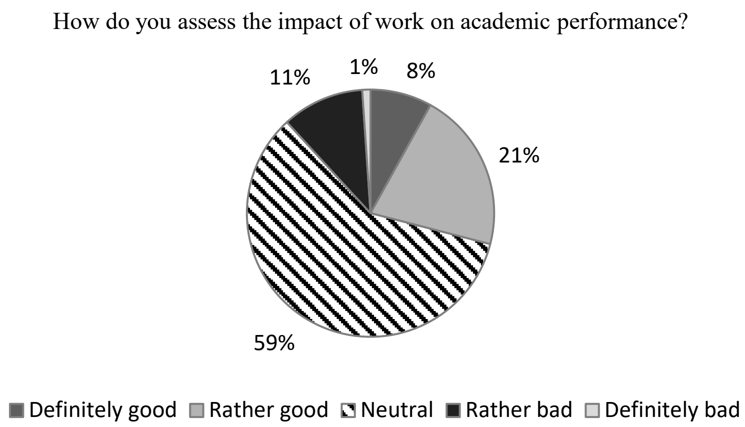

Figure 3. Perceived impact of work on academic performance
Source: own work.

The survey also examined how students perceive the impact of employment on academic performance. Most respondents (59%) reported that work did not affect their results. At the same time, positive evaluations (29%) were more frequent than negative ones (12%). This pattern may suggest that many students can organise their time and responsibilities in a way that protects their academic performance. For some students, work may even increase motivation and improve discipline, while negative effects may occur mainly in situations of overload or poor balance. These findings are consistent with previous research, which indicates that the impact of student employment on academic performance is not unambiguous and depends on factors such as the intensity of work (Kroupová, 2021).

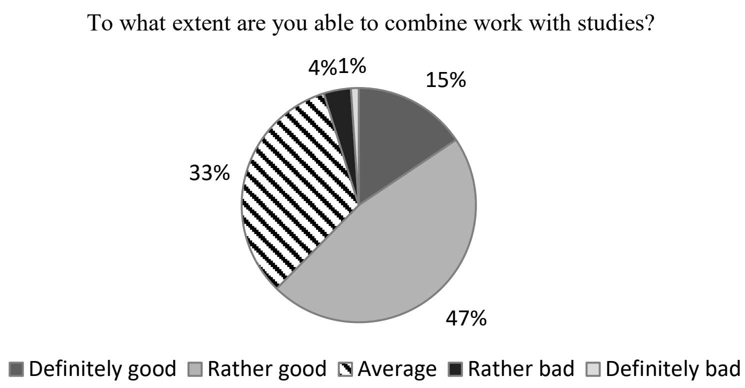

Figure 4. Ability to combine work with studies
Source: own work.

Respondents were also asked to assess how well they can combine work with studying. The results were largely positive: 95% of respondents rated their ability as at least satisfactory. The most common answer was “rather good” (49%). Only a small group reported serious difficulties. This may indicate that flexible employment and personal time-management strategies help many students manage both roles. This observation supports the conclusions presented in the literature, according to which flexible forms of employment enable students to combine work with studying more effectively (Wronowska, 2011).

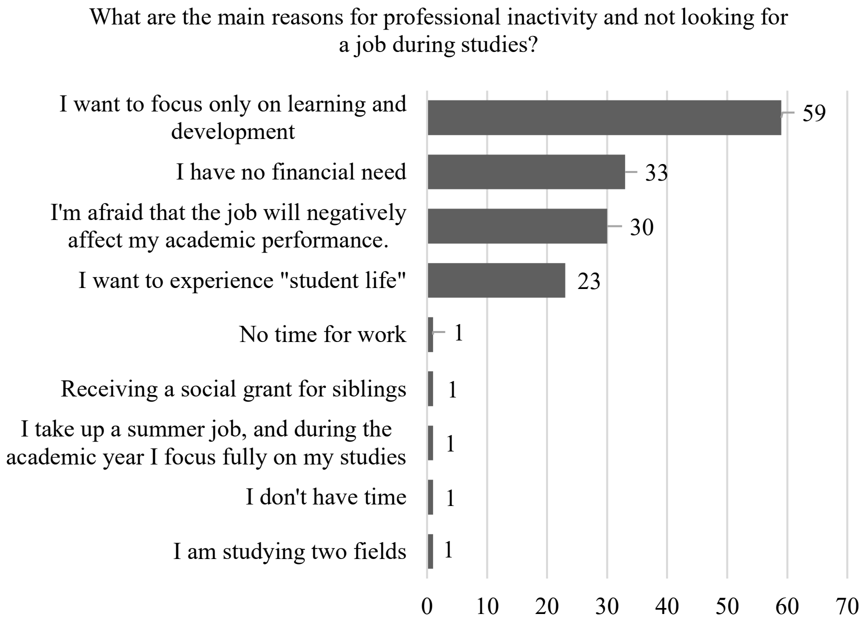

Figure 5. Reasons for professional inactivity during studies
Source: own work.

Finally, the survey asked students who were not employed about their reasons for not working and not looking for a job. Respondents could choose up to three answers. The most common reason was the desire to focus on education and personal development (59 responses). Another important reason was the lack of financial need (33 responses). Other answers, such as the fear of a negative impact on grades or the wish to enjoy student life, were chosen less often. These results suggest that not working is often an intentional decision, based on priorities rather than a lack of opportunities. This result is in line with previous studies suggesting that some students consciously resign from employment in order to focus on education and personal development (Wronowska, 2011).

Overall, these findings imply that student employment is a relatively common phenomenon, although not all students decide to work during their studies. The findings show that financial motivation plays a dominant role in the decision to take up employment, while developmental motives such as gaining experience or skills are of secondary importance. At the same time, most respondents perceive the impact of work on academic performance as neutral, which may suggest that students are generally able to balance their educational and professional responsibilities. This may indicate that the lack of employment is often a conscious choice, related to the desire to focus on education and personal development. These findings are consistent with the literature and provide a basis for further interpretation in the following section.

4. The student between education and the labour market – an inter pretative view

The results of the present study indicate that student employment should be understood as a wider social phenomenon, not only as an individual decision. As suggested in the literature, student work is increasingly becoming part of the typical study experience and functions as a non-academic activity that can shape competences and career plans (Bącik, Gawarkiewicz, and Siewicz, 2010). In this sense, employment may be seen as an early stage of entering the labour market and learning professional routines.

An important aspect of the presented results is their regional context. The study was conducted among students from the Podkarpackie Voivodeship, including Rzeszów, which is a dynamically developing academic centre, but still differs from larger metropolitan areas such as Warsaw or Kraków.

This regional perspective may help to explain the dominance of financial motivation observed in the study. In regions with fewer employment opportunities and lower average income levels, students may be more likely to treat work as a necessity rather than a form of professional development. This is reflected in the results of the present study, where financial motivation was clearly dominant among respondents.

These findings imply that student employment has at least two main dimensions: economic and developmental. On the economic side, work helps students meet everyday needs and become financially independent. On the developmental side, it may create opportunities to learn practical skills and gain professional experience. This suggests that the economic aspect plays the primary role, but the presence of developmental motivations suggests that for some students, employment is also a form of investment in the future.

Working during studies also involves the challenge of managing two roles at the same time. This may influence everyday routines, social life, and academic engagement. As noted by Zielińska, employment can change how students experience university life and may push them towards a more task-oriented way of functioning (Zielińska, 2017). At the same time, many students appear to develop strategies that allow them to keep their academic performance stable.

International research emphasises that the impact of work on academic results depends on factors such as working hours and workload intensity (Kroupová, 2021). The survey results show that students more often perceive work as neutral rather than harmful, which may suggest that many of them limit working hours or choose jobs that fit their study schedules. Negative experiences may be related to overload, stress, or insufficient rest, which may occur when students work too much. This is consistent with the findings of the present study, where most students assessed the impact of work on academic performance as neutral.

It is also important to interpret the situation of students who do not work. The survey suggests that in many cases this is not a result of passivity, but a decision to focus on education and personal development. As described in Polish research, some students treat the university period as a time of intensive academic investment and postpone employment until later (Wronowska, 2011). The results of the present study clearly support this view, indicating that non-employment is often a deliberate and strategic choice.

Therefore, the findings of the present study contribute to a better understanding of student employment outside major academic and economic centres, highlighting the importance of local labour market conditions in shaping students' decisions.

5. Conclusions

The conducted research confirmed that student employment during studies is a common phenomenon, but not universal in the analysed group. Financial need was the main motivation for taking a job, while motivations related to experience and skill development were less frequent. Most respondents perceived the impact of work on academic results as neutral, and positive evaluations were more common than negative ones. Additionally, most students declared that they were able to combine employment with studying. At the same time, students who were not employed most often chose to focus on education and personal development. These findings show that student employment is a complex issue shaped by economic needs, personal priorities, and the ability to balance responsibilities. Understanding these patterns may support universities and employers in creating conditions that help students combine education and work without reducing academic quality or well-being. It is also important to emphasise the regional context of the study. The research was conducted among students from the Podkarpackie Voivodeship, including Rzeszów, which may partly explain the strong emphasis on financial motivation. The results suggest that local labour market conditions and economic factors play a significant role in shaping students' decisions regarding employment. Future research may further explore the issue of student employment and its impact on academic life.

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PRICE DISCRIMINATION IN DIGITAL MARKETPLACE: AN ANALYSIS OF PURCHASING POWER PARITY (PPP) AND DIGITAL ARBITRAGE

Emre Vural[1]

ABSTRACT

Today's digital borders are being redrawn by companies through geo-blocking and regional pricing strategies. The concept of digital arbitrage has entered our lives as a result of consumers in different countries accessing products/services at different prices, in line with companies' price differentiation strategies. This study aims to examine regional pricing in digital markets within the framework of purchasing power parity, and to explain the concepts of digital arbitrage and geo-blocking as methods of preventing digital arbitrage. Furthermore, this study aims to empirically test pricing behaviours on Steam, the world's largest digital game distribution platform, by correlating them with countries' purchasing power parity. The price of a basket consisting of 10 games was examined in 63 countries from different income groups and analysed using both linear and log-linear regression models. The findings suggest a statistically significant positive relationship between income levels and digital game prices, although the explanatory power of the linear model remains limited. The log-linear specification provides a better fit, indicating that the relationship may be proportional rather than strictly linear. In addition, deviations from predicted prices reveal substantial cross-country differences and point to the potential existence of digital arbitrage opportunities. The study contributes to the literature by revealing, through concrete data, how price differentiation policies trigger digital migration.

Key words: price discrimination, geo-blocking, digital arbitrage, purchasing power parity.

JEL: L11, L81.

1. Introduction

With the technological developments experienced in the last 20 years, trade, like most areas of our lives, has begun to digitize. As digitalization gained momentum, the production, distribution, marketing, and pricing processes of goods

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and services have also undergone a radical change. In particular, the ability to deliver digital products and services directly to consumers in different geographies without being hindered by physical borders and without transportation costs enables companies to act more flexibly in pricing. One of the factors affecting companies' regional pricing strategies is the purchasing power of the country where the product or service will be offered. Considering the difference in purchasing power, companies may follow a strategy of selling digital products at low prices in low-income countries and at high prices in high-income countries. This practice creates a risk of the arbitrage phenomenon emerging in digital markets.

Individual consumers or professional arbitrageurs can take advantage of price differences applied in different countries to purchase digital products or services from low-priced markets and use or sell them in different geographies. VPN services assist in this digital arbitrage process. Consequently, companies may restrict access to products or services from other countries.

This study aims to examine regional pricing in digital markets within the framework of purchasing power parity, and to address digital arbitrage and geo-blocking as a means of preventing digital arbitrage. Furthermore, a case study was conducted to support the research. In this case study, cross-country price differences of a basket created by the researcher and available on the digital game distribution platform Steam were examined within the framework of the purchasing power concept across high, middle, and low-income countries.

2. Price discrimination

The main goal of firms is to maximize their profits. For a firm aiming to achieve maximum profit, the ability to apply different prices to different customers is an advantage, because price is the most fundamental element affecting the purchasing decision. Since firms' customers consist of people with different tastes, preferences, and income groups, it is in the firm's interest to be able to apply different prices to alter the purchasing decisions of these different groups. Therefore, firms may follow various pricing strategies. Price discrimination is the most widely used of these strategies today.

Although there are various examples explaining price discrimination in the microeconomics books, the most common one is Louis Phlips's Disneyland example: a case where the same commodity is sold, such as an entrance ticket to Disneyland on a particular day, senior citizens receive a discount, as do children and military personnel. While a specific definition of price discrimination is not made in the literature, its most widely known definition is as follows: it occurs when the same good is sold to different customers at different prices. Also, if one can discriminate, it is profitable to do so. Given a number of separated markets with different identifiable demands, a discriminating price policy is at least as profitable as a non-discriminating one.

In the literature, price discrimination is examined in three categories: first-degree price discrimination occurs when a producer knows exactly how much consumers are willing to pay and is able to capture the whole surplus, charging a tailored price equal to the reservation price. Second-degree price discrimination happens when a firm sets a price per unit that varies with the number of units the customer buys. Assuming that producers cannot distinguish consumers' tastes, they will offer personalized packages or bundles, letting customers choose among them. Third-degree price discrimination takes place when a firm charges different prices to different groups of customers depending on their elasticity of demand. (Zarra, 2016)

Pricing strategies observed in digital markets are mostly evaluated within the scope of third-degree price discrimination. In particular, geo-based pricing is a method frequently resorted to by digital platforms. Since digital products and services do not incur transportation costs, different pricing can be applied according to regions. In this context, software, subscriptions, and games are among the areas where price differentiation is most clearly observed.

3. Geo-blocking and digital arbitrage

There are differences in the implementation and sustainability of the price discrimination strategy in digital markets and physical markets. In physical markets, transportation costs, customs barriers, and legal restrictions limit arbitrage opportunities. In digital markets, however, since there are no transportation costs or customs barriers, the sustainability of the price discrimination strategy largely depends on preventing arbitrage. Therefore, companies resort to the geo-blocking mechanism to protect regional prices. However, the European Commission put an end to geo-blocking rules on the grounds that they undermined online shopping and cross-border sales in the EU. The Commission defines geo-blocking as follows: traders operating in one Member State blocking or limiting access to their online interfaces, such as websites and applications, for customers from other Member States who wish to carry out cross-border transactions.

The three specific situations of unjustified geo-blocking defined by the geo-blocking regulation are shown in Table 1.

Table 1. Types of geo-blocking

Type of geo-blocking	Example
1	*2*
The sale of *goods without* physical delivery	A Belgian customer *wishes to buy* a refrigerator and finds the best deal on a German website. The customer will be entitled to order the product and collect it at the trader's premises or organize delivery himself to his home

(cont.)

1	*2*
The sale of *electronically* supplied services	A Bulgarian consumer *wishes to buy* hosting services for her website from a Spanish company. She will now have access to the service, can register and buy this service without having to pay additional fees compared to a Spanish consumer
The sale of services provided in a specific physical location	An Italian family visits a French theme park and wishes to take advantage of a family discount on the price of the entry tickets. The discounted price will be available for the Italian family

Source: European Commission (2024).

Zarra (2016) mentions three types of geo-blocking: blocking measures, rerouting measures, and restrictive measures. In blocking measures, companies prevent users from entering websites by blocking access to cross-border content. In rerouting measures, users are automatically redirected to national websites. In restrictive measures, while access to the platform is allowed, the purchasing process is restricted.

4. Purchasing Power Parity (PPP)

In order to conduct an analysis in the field of economics, it is sometimes necessary to make comparisons. In cases where two countries need to be compared, Gross Domestic Product (GDP) comes into play. GDP refers to the total market value of all goods and services produced and sold in the relevant countries. When this value is divided by the population, per capita income is obtained, and this value is used when comparing the welfare of countries. Other alternative methods are also used in the literature when comparing the welfare of countries. One of these methods is the Purchasing Power Parity (PPP) approach. This approach was introduced to the literature by Gustav Cassel in 1918. Cassel defines PPP as follows.

"According to the theory of international exchanges which I have tried to develop during the course of the war, the rate of exchange between two countries is primarily determined by the quotient between the internal purchasing power against goods of the money of each country. The general inflation which has taken place during the war has lowered this purchasing power in all countries, though in a very different degree, and the rates of exchanges should accordingly be expected to deviate from their old parity in proportion to the inflation of each country. At every moment the real parity between two countries is represented by this quotient between the purchasing power of the money in the one country and the other. I propose to call this parity the purchasing power parity."

In cases where firms follow a regional pricing strategy, the purchasing power parity approach is of great importance in order to compare the accessibility of the same product/service for consumers in different countries. Since this study involves comparing game prices on the digital game distribution channel Steam across countries in different income groups, the purchasing power parity approach is crucial for this study.

5. Literature review

There are a wide variety of studies on geo-blocking and price differentiation in the literature. In this section of the study, some important studies on the subject and their findings are included.

Within the framework of price discrimination in digital environments, geo-blocking practices are considered to allow firms to segment markets geographically and sustain third-degree price discrimination, thereby helping to limit arbitrage (Zarra, 2016). In this context, geo-blocking is used as a strategic tool. Similar findings are supported by other studies. It is argued that firms can strategically use geo-blocking practices to soften competition and maintain profit margins, and therefore price differentiation may be related not only to demand but also to market competition (Bourreau and Manenti, 2022).

More recent studies add a different dimension to the literature. With the increasing prevalence of data-driven pricing mechanisms, firms are able to analyse user behaviour in greater detail, which is believed to enhance their capacity for price differentiation (Grochowski et al., 2022).

In parallel with these developments, studies focusing on personalized and algorithmic pricing highlight that firms can differentiate prices at an individual level by using consumer data, which may significantly expand the scope of price discrimination in digital markets (Poort and Zuiderveen Borgesius, 2019). This suggests that price differentiation is no longer limited to country-level segmentation but may also operate at the user level.

Cardona (2016) analysed the results of a comprehensive “mystery shopping” survey conducted across the EU. The study revealed that 63% of cross-border shopping attempts were blocked by sellers. Cardona noted that these blockages were most prominent in the electronics and household appliances sectors and that this situation prevented the full realization of e-commerce potential in Europe. In response to this issue, policy regulations have been developed. Hutchinson (2018) conducted a legal analysis of the Geo-blocking Regulation adopted by the EU in 2018, stating that its main objective is to prevent discrimination based on nationality or place of residence and to introduce the principle of “shop like a local.” However, it is also argued that although geo-blocking regulations have achieved progress in certain areas, significant shortcomings remain in implementation, awareness, and enforcement processes, and therefore full market integration has not yet been achieved (European Court of Auditors, 2025).

Besiekierska (2021) examined the legal dimensions of geo-blocking regulations, emphasizing that this legal framework is a necessary step for the functioning of the digital single market, but that differences in implementation across member states need to be eliminated. Fortes, Martins, and Oliveira (2021) approached the issue from an ethical and legal perspective through the concept of "digital geodiscrimination," arguing that algorithms profile consumers based on their geographical location and use this data to offer different prices or service conditions.

From a broader industry perspective, the gaming market has also been analysed within the framework of competition law and platform regulation. In particular, digital distribution platforms are considered to hold a critical intermediary position, which may enable practices such as geo-blocking, price differentiation, and market segmentation (Gómez Trujillo, 2023). This highlights the relevance of platform power in shaping pricing strategies.

Beyond the theoretical and legal framework, empirical analyses have also been conducted in the literature. Studies focusing on measuring price differences suggest that while some convergence may exist between digital and physical prices, income levels remain an important determinant in cross-country comparisons (Cavallo, 2017). Cavallo (2017) compared online and offline prices using data from 10 countries and found that retailers applied the same price in both channels in 72% of cases. This finding is significant as it shows that prices in digital markets may not be as dynamic and differentiated as often assumed, and that firms prioritize channel consistency.

Similar findings are observed in other studies. It is stated that per capita income is an important variable in understanding price differences and that cross-country heterogeneity is shaped within this framework (Gyódi et al., 2017). Gyódi, Sobolewski, and Ziembiński (2017) examined price dispersion in e-commerce using data from 26 EU member states and found that, in addition to logistics costs, per capita income levels were among the main determinants of price differences. This provides strong evidence that firms implement cross-country price differentiation strategies based on macroeconomic indicators, particularly purchasing power. On the other hand, although the removal of trade barriers may increase consumer welfare, it is also argued that digital trade can increase price differences and expand arbitrage opportunities (Duch-Brown et al., 2020).

In this context, the concept of purchasing power parity (PPP) provides an important theoretical background for understanding cross-country price differences. Empirical studies testing the PPP hypothesis suggest that price levels and exchange rate dynamics may converge in the long run, although short-run deviations are common (Žďárek, 2012). This supports the idea that observed price differences may persist due to structural and market-specific factors.

Duch-Brown, Grzybowski, Romahn, and Verboven (2020) empirically tested the effects of the geo-blocking ban in the portable computer market. One of the most striking findings of the study is that the welfare gains from the ban stem primarily from increased product variety rather than price convergence.

When the literature is examined, it can be seen that most existing studies focus either on regulatory frameworks or general e-commerce markets, while studies directly testing the relationship between pricing and purchasing power in platform-based digital product markets remain limited. In particular, the digital game market has not been sufficiently explored. Although global platforms such as Steam provide a unique context in which pricing behaviour, income differences, and digital arbitrage opportunities can be observed simultaneously, empirical studies in this area are still scarce. This study addresses this gap. By employing both linear and logarithmic models, it aims to test the extent to which digital game prices are related to purchasing power and to reveal the potential for digital arbitrage through deviations from expected price levels.

6. Methodology

In this study, a quantitative research method has been adopted to analyse price differentiation strategies in the digital game market and the relationship between these strategies and the purchasing power of countries. It is considered that using linear and logarithmic regression models together may provide a more comprehensive analysis in order to examine this relationship. The analysis is multi-layered. In this context, different types of models have been preferred in order to evaluate whether the findings obtained are specific to a particular model. In addition, residual and deviation analyses have also been included to examine the model results in greater detail.

The research population consists of Steam, the global digital game distribution platform. This platform was preferred because its wide geographical coverage allows for the examination of countries with different income levels together. The sample consists of 63 countries. These countries represent different income groups. In the selection process, it can be said that attention was paid to achieving as heterogeneous a distribution as possible among the countries where the platform provides services.

In the price analysis, instead of relying on data from a single game, a basket consisting of 10 games was created to ensure diversity. To ensure diversity in the created segment, high-budget new productions (AAA), indie (independent) productions, and games that can now be considered classics were included. The content of the basket is as follows: Baldur's Gate 3, Elden Ring, Call of Duty Modern Warfare 3, Red Dead Redemption 2, Cyberpunk 2077, Euro Truck Simulator 2, Rust, Stardew Valley, Hades 2, Terraria. Price data for the games were retrieved instantaneously from the SteamDB database as of January 2026. Local currencies were converted to US dollars using instant exchange rate conversion to ensure comparability.

The variables used in the study are as follows: Dependent variable (Y): The US dollar price of the average price of the '10-game basket' calculated for 63 countries. Independent variable (X): Data on countries' gross domestic product per capita (GDP per capita PPP). This data was obtained in terms of purchasing power parity (PPP) to adjust for price level differences and living costs between countries. For macroeconomic data, the 2024 data, which is the most recent finalized set in the World Bank database, was used. The time difference (time-lag) between price data (2026) and GDP per capita PPP data (2024) was neglected in the analysis under the assumption (ceteris paribus) that the macroeconomic welfare rankings of the countries did not undergo a structural change in the short term and relative purchasing power remained constant.

Within the scope of the analysis, a linear regression model was first constructed. The simple linear regression model established within the scope of the analysis is as follows:

$$Price_i = \beta_0 + \beta_1 \left(GDP_{PPP_i}\right) + \epsilon_i \quad (1)$$

In this equation, $Price_i$ represents the average game basket price in country i; while GDP_{PPP_i} represents the per capita purchasing power of that country. In this model, it is assumed that there is a direct relationship between the variable representing the average game price at the country level and per capita income. However, it should not be overlooked that the model may be limited and that other factors may also be influential. For this reason, a second model has been established. In the newly constructed model, a log-linear model was preferred based on the assumption that the relationship between the variables may have a proportional structure rather than a purely linear one.

$$\ln\,(Price_i) = \beta_0 + \beta_1\, ln\left(GDP_{PPP_i}\right) + \epsilon_i \quad (2)$$

This model is considered to provide advantages, particularly in reducing the problem of heteroscedasticity and in capturing the percentage-based relationship between variables more clearly. It is anticipated that the results may differ under this model.

Residual analysis was conducted to evaluate the performance of the model. Residual values represent the differences between the observed prices and the values predicted by the model, and it is suggested that they may reveal the countries in which the model systematically makes errors. In addition, a deviation analysis was performed. In order to more clearly observe price differences between countries, the proportional differences between the actual prices and the predicted values were calculated. The deviation values were computed as follows:

$$Deviation_i = \frac{Actual\ Price_i - Predicted\ Price_i}{Predicted\ Price_i} \quad (3)$$

The values obtained as a result of this calculation indicate the extent to which countries deviate from the expected price level. Negative values may point to relatively lower prices, while positive values may be associated with higher price levels. Within this framework, it is observed that some countries are cheaper than expected, while others are more expensive. This situation is considered to lead to the emergence of arbitrage opportunities in digital markets, allowing participants to benefit from price differences.

7. Findings

The findings obtained as a result of the regression analysis applied to the macroeconomic data collected for 63 countries and the constructed digital game basket prices within the scope of the study are as follows:

In the constructed econometric model, the strength and direction of the relationship between countries' purchasing power and digital game prices were tested. According to the analysis results, a positive relationship was detected between per capita income and digital game basket prices. However, this relationship alone is insufficient to fully explain all price differences. This finding appears to be consistent with empirical studies in the literature emphasizing that income level is an important but not solely sufficient determinant of price differentiation (Cavallo, 2017; Gyódi et al., 2017). The main outputs of the model are shown in Table 2 and Table 3:

Table 2. Summary statistics of the linear regression model

Statistics	Value
Observations	63
R-squared	0.25
Significance F	0.000026

Source: created by the author.

Table 3. Linear Regression Results: GDP per Capita (PPP) and Game Basket Prices

Variables	Coefficient	Standard Error	P-Value
Intercept	34.94	1.87	<0.001
GDP per Capita (PPP)	0.00013	0.000029	<0.001

Source: created by the author.

The results of the linear regression model indicate that as purchasing power increases, the game basket price also tends to rise. The overall significance level of the model appears to be statistically strong, and the Significance F value suggests that this relationship is not merely the result of random variation. This limited explanatory power is consistent with theoretical approaches arguing that price differentiation in digital markets is shaped not only by income but also by strategic and competitive factors (Bourreau and Manenti, 2022). The direction of the relationship is positive. However, the explanatory power of the linear model remains limited. An R-squared value of approximately 0.253 indicates that only about one-quarter of the variation in game prices across countries can be explained by per capita income, while the remaining portion is associated with other variables. The summary statistics of the linear model are visualized in Figure 1.

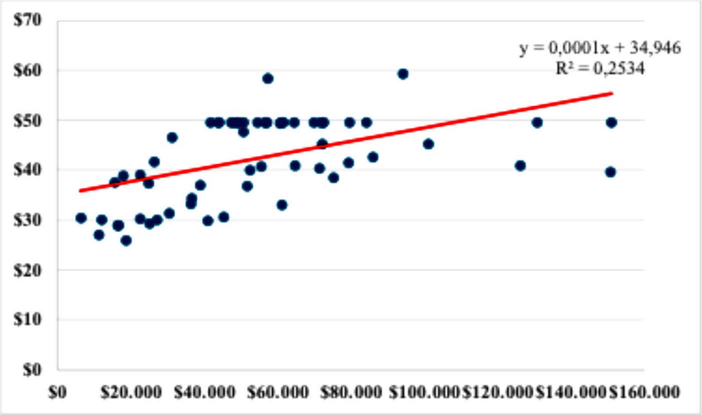

Figure 1. The linear relationship between GDP per capita (PPP) and digital game prices

Source: created by the author using data from The World Bank (GDP PPP, 2024) and SteamDB (2026).

According to Figure 1, the trend line is upward sloping. This indicates that as income levels increase, prices also rise. However, the distribution in the graph suggests that a single-variable linear structure may be insufficient. The distribution is not homogeneous. This heterogeneous pattern is consistent with studies in the literature indicating that digital platforms determine prices not only based on cost or income but also through regional strategies (Zarra, 2016). Clustering is particularly noticeable among countries in the low- and middle-income groups. In contrast, among high-income countries, the presence of significant price differences even between observations with similar income levels indicates that the platform takes regional pricing strategies into account.

When the coefficient of the linear model is examined, it is observed that each 1-dollar increase in per capita income leads to a very small but positive increase in the basket price. The direction of the relationship is as expected; however, the magnitude of the relationship shows that pricing does not operate solely through an income-based automatic mechanism, but also involves platform decisions and country-specific market conditions. This finding is consistent with recent studies suggesting that data-driven and algorithmic pricing mechanisms are becoming increasingly influential in price formation (Grochowski et al., 2022; OECD, 2023).

This result is also in line with studies suggesting that digital platforms may implement more granular and personalized pricing strategies, extending price differentiation beyond country-level segmentation (Poort and Zuiderveen Borgesius, 2019).

Following the linear model, the log-linear model produced stronger results. The main outputs of the model are shown in Table 4 and Table 5. The findings obtained as a result of the log-linear analysis applied to the macroeconomic data collected for 63 countries and the constructed digital game basket prices within the scope of the study are as follows:

Table 4. Summary statistics of the log-linear model

Statistics	Value
Observations	63
R-squared	0.43
Significance F	<0.001

Source: created by the author.

Table 5. Log-Linear Regression Results: ln(GDP per Capita (PPP)) and ln(Game Basket Prices)

Variables	Coefficient	Standard Error	P-Value
Intercept	1.38	0.34	<0.001
ln(GDP per Capita (PPP))	0.22	0.032	<0.001

Source: created by the author.

When the outputs of the log-linear model are examined, it is observed that when ln(Price) is used as the dependent variable and ln(GDP per Capita (PPP)) as the independent variable, the explanatory power of the model increases to approximately 0.436, indicating that the logarithmic structure fits the data better. This increase does not appear to be random. This finding is consistent with the empirical literature emphasizing that relationships in digital markets are often not linear but proportional and scale-dependent. The rise in the explanatory power from around 25% in the linear model to about 44% in the log model suggests that the relationship between price and income may have a proportional structure. In this respect, it can be said that the log model performs better.

Moreover, the coefficient is more meaningful. The ln(GDP per Capita (PPP)) coefficient of approximately 0.218 indicates that a 1% increase in per capita income may be associated with about a 0.22% increase in the game basket price. In other words, prices increase along with income. However, this increase is not proportional; that is, the platform does not automatically reflect much higher prices in wealthier countries, but rather appears to limit price increases to some extent. This suggests the presence of other factors influencing pricing strategies. The summary statistics of the analysis and the explanatory coefficient of the model are visualized in Figure 2.

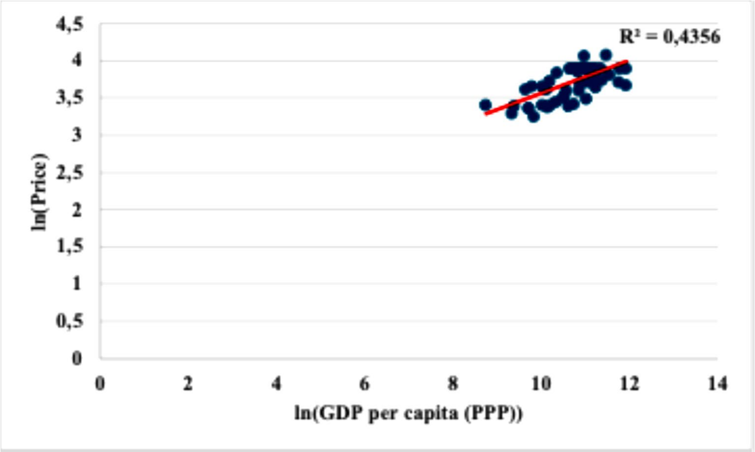

Figure 2. The log-linear relationship between GDP per capita (PPP) and digital game prices

Source: created by the author using data from The World Bank (GDP PPP, 2024) and SteamDB (2026).

At this point, cross-country comparisons become more informative. The observed price differences even among countries within similar income groups suggest that a pricing logic based solely on purchasing power may be insufficient and that national markets are positioned differently. This result aligns with recent policy reports arguing that price differences between countries persist in the digital economy and that market integration remains limited (UNCTAD, 2024). In short, the same income level does not correspond to the same price level. This deviation from a one-to-one relationship is also consistent with empirical studies on purchasing power parity, which suggest that price levels may diverge across countries despite similar income levels, especially in the short run (Žďárek, 2012). The effect of this can be clearly seen in the residual plot. Figure 3 shows the distribution of residual values.

According to Figure 3, the fact that the residuals are not distributed completely randomly around the zero line suggests that the model systematically overestimates or underestimates at certain income levels; therefore, the linear form may be insufficient. In particular, the concentration of positive residuals in the middle-income range is noteworthy. This clustering indicates that in some middle-income countries, actual prices remain higher than those predicted by the model, while in low- and very high-income groups, deviations in the opposite direction are more frequently observed. For this reason, deviation analysis gains particular importance. Figure 4 presents information related to the deviation analysis.

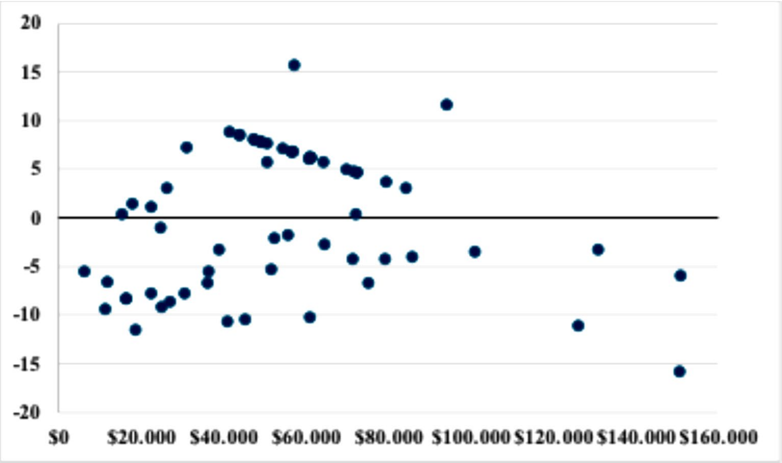

Figure 3. Residual distribution from the linear regression model

Source: Created by the author using data from The World Bank (GDP PPP, 2024) and SteamDB (2026).

The deviation values calculated based on the proportional difference between actual prices and predicted prices make it possible to more clearly identify which countries are positioned as more expensive or cheaper than expected. Figure 4 indicates that Israel has the highest positive deviation, suggesting that its prices are significantly above the predicted level. Israel's positive deviation of approximately 36.7% suggests that prices in this country are significantly above the level predicted by the model, indicating a relatively more expensive market structure compared to its purchasing power. Following Israel, Switzerland exhibits the next highest positive deviation. The deviation of approximately 24.2% in Switzerland similarly suggests that, despite its high income level, prices remain above the predicted line, implying that consumers face a relatively expensive digital market.

Among the countries with positive deviations, Bulgaria, Latvia, and Greece also stand out. With deviations of approximately 21.8%, 20.8%, and 20.7%, respectively, these findings suggest that prices in these countries are higher than expected relative to their income levels, pointing to a possible pattern of relative expensiveness within Europe. Slovakia, Hungary, Romania, Croatia, and Estonia are close to this group. In these countries, positive deviations range between approximately 18.6% and 19.5%, indicating a consistent, though not extreme, tendency for prices to remain above predicted levels. The fact that some countries in Eastern and Central Europe appear relatively expensive despite not having income levels comparable to Western Europe suggests that pricing cannot be explained solely by welfare levels and that regional price standardization may play a role.

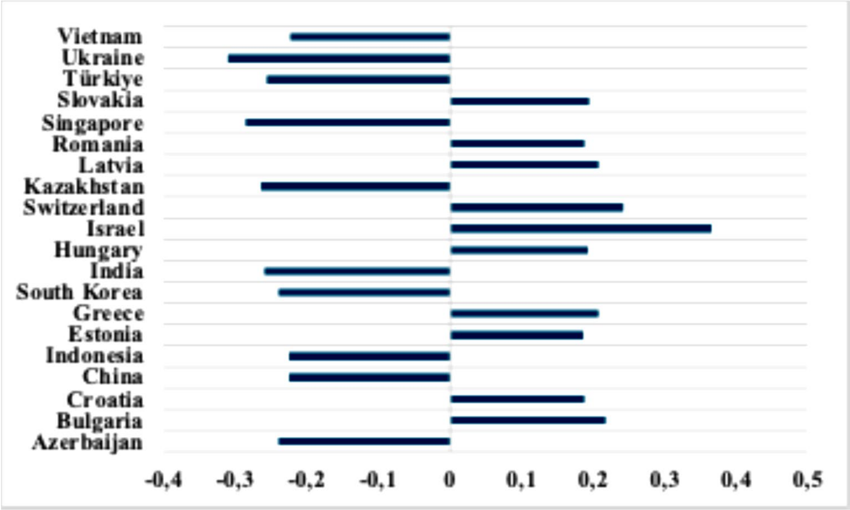

Figure 4. Price deviations from the estimated model

Source: created by the author using data from The World Bank (GDP PPP, 2024) and SteamDB (2026).

Looking at the group with negative deviations, Ukraine exhibits the lowest deviation at approximately – 30.9%, indicating that prices in this country are far below the level expected by the model and pointing to a strong relative affordability. Ukraine appears to be the cheapest market. In Singapore, a negative deviation of approximately – 28.6% suggests that even a high-income country can fall below the predicted price line, indicating that high welfare does not automatically result in high prices. This case appears to be an outlier. Kazakhstan and India also show significant negative deviations. With deviations of approximately – 26.4% and – 25.9%, respectively, these results suggest that prices in these countries are relatively low compared to purchasing power, making them potentially attractive regions for digital arbitrage. Türkiye is also included in this group. A deviation of approximately – 25.5% indicates that prices in Türkiye are significantly below model predictions, meaning that Steam pricing remains relatively low given the country's income level. In this respect, Türkiye stands out.

Vietnam, China, and Indonesia are also part of the negative deviation group. With deviations ranging between approximately – 22% and – 22.5%, these countries suggest that prices in some Asian markets are kept below expected levels, possibly due to regional price differentiation strategies. Azerbaijan and South Korea also fall into the negative deviation group; however, although both exhibit deviations of around – 23.9%, their differing income levels, regional positions, and consumer market structures suggest that similar outcomes may arise from different underlying causes.

When countries with negative and positive deviations are compared, the fact that countries such as Israel and Switzerland lie above the predicted level, while countries such as Türkiye, Ukraine, and Kazakhstan fall below it, indicates that the platform does not apply a uniform global pricing strategy. This finding is consistent with the literature suggesting that geo-blocking and regional price differentiation are strategically employed by firms (Zarra, 2016). This observation also supports the view that digital platforms, particularly in the gaming industry, act as strategic intermediaries that actively shape regional pricing structures (Gómez Trujillo, 2023). Moreover, similar magnitudes of deviation may carry different meanings. For instance, Israel's positive deviation and Türkiye's negative deviation can be interpreted not only as opposite extremes but also as representing two distinct regional pricing regimes-one reflecting relative expensiveness and the other relative affordability.

In addition, factors outside the model play an important role. Elements such as tax structures, exchange rate policies, and regional competitive conditions, as well as the strategic choices of digital platforms and likely expectations regarding user behaviour, may also influence price formation. This multidimensional structure aligns with recent studies emphasizing the need to jointly consider algorithmic pricing and digital market dynamics (OECD, 2023). Therefore, the findings should be evaluated in two stages. In the first stage, purchasing power can be considered a significant variable in explaining prices; in the second stage, this explanation remains incomplete, and large cross-country deviations may point to alternative factors.

The findings also indicate the existence of digital arbitrage opportunities. The significant price deviations observed across countries suggest that the same digital product is offered at different price levels in different regions, which may increase consumers' incentives for cross-border purchasing. In particular, in countries with negative deviations, prices falling below expected levels indicate that these regions have become relatively cheaper markets and may offer potential arbitrage opportunities. Conversely, in countries with positive deviations, consumers are required to pay higher prices for the same product, suggesting that regional pricing strategies of platforms may have varying impacts on consumer welfare. In this context, the findings demonstrate that price differentiation in digital markets is shaped not only by local economic conditions but also by firms' strategic decisions, and that this situation may foster digital arbitrage dynamics.

8. Conclusions

This study analysed the relationship between pricing mechanisms in the digital game market and the purchasing power of countries across 63 countries and 10 different games. The study has certain limitations. The single-variable model structure and the limitations of the dataset in terms of its time dimension require that the results be interpreted with caution.

The findings indicate that price differentiation strategies in the digital game market may be related to the purchasing power of countries; however, this relationship alone is not sufficient to explain prices. The results point to a positive relationship between per capita income and game prices. The relationship exists, but it is limited. Although the linear model appears to be statistically significant, its low explanatory power suggests that pricing is not determined solely by purchasing power and that other factors may also play a role. Therefore, the linear model is not sufficient on its own. The log-linear model, on the other hand, appears to be stronger. The higher explanatory power obtained from this model suggests that the relationship between price and income is not linear but proportional in nature.

When cross-country comparisons are made, it is observed that prices remain above expected levels in countries such as Israel and Switzerland, while they are lower in countries such as Türkiye, Ukraine, and Kazakhstan. This points to an important insight: prices are not determined solely based on income levels. It is likely that platforms implement country-specific strategies, resulting in different pricing patterns. This indicates the absence of a uniform pricing structure. The deviation analysis also supports this interpretation. It can be argued that prices remain relatively low in countries with negative deviations, while a more expensive structure emerges in countries with positive deviations. These differences may create arbitrage opportunities. Since digital products are less constrained by geographical boundaries, consumers may turn to lower-priced markets, which could affect market equilibrium.

Overall, the findings suggest that pricing in the digital game market is a multidimensional process. Although purchasing power plays an important role, prices are likely shaped by the combined effects of various economic and strategic factors. As long as this price advantage persists in certain countries, consumer motivation to overcome physical borders through digital means will continue. Such an increase in consumer mobility may force firms to adopt stricter geo-blocking measures or reduce price differentials. Indeed, Steam's removal of local currency support in Türkiye and Argentina at the end of 2023 and its transition to U.S. dollar pricing can be seen as a concrete indicator of this defensive response. Homo economicus will always find ways to overcome the digital barriers constructed by firms. The solution to this issue lies not in further tightening digital borders, but in addressing the global income inequality reflected in digital markets.

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THE LIPSTICK ECONOMY IN LITHUANIA AND POLAND: TRENDS AND CONSUMER BEHAVIOUR

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ABSTRACT

The study examined the "lipstick effect" through a survey of consumers in Lithuania and Poland. Data analysis and comparative methods were used to examine the similarities and differences between these markets. Consumer behaviour during economic downturns was examined, focusing on purchase patterns of inexpensive luxury goods and financial planning strategies. The results reveal significant differences between Lithuanian and Polish consumers. The study took into account key factors influencing purchasing decisions, such as the importance of well-being, price sensitivity and the influence of advertising on purchasing decisions, among others. It showed the need for differentiated approaches when adapting one's strategies in different markets, which, as in the case of Poland and Lithuania, are located within the same region, yet exhibit distinct consumer behaviour patterns requiring tailored marketing strategies. The conclusions drawn in this article contribute to the understanding of consumer behaviour in Eastern European markets during times of economic uncertainty. They can serve as a reference for companies in adjusting their marketing strategies, providing valuable data for economic analysts and marketers operating in these countries. Although the study provides important insights, it does not exhaust the complexity of the "lipstick

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effect" phenomenon and should be treated as a foundation for further empirical and theoretical research.

Key words: lipstick effect, luxury goods, consumers, Lithuania, Poland.

JEL: L1, D12, M31.

1. Introduction

Lipstick effect is a psychological-economic indicator that emerges during periods of economic downturn or crisis. The concept suggests that during such times, consumers tend to choose not to buy expensive luxury goods while still seeking small, affordable indulgences—such as cosmetics—to improve their mood and overall well-being. The "lipstick effect" can be regarded as a secondary economic indicator, following the substitution of high-cost products with lower-cost alternatives. This phenomenon illustrates the interplay between consumer behaviour and psychological coping mechanisms in challenging economic environments (Nufer, 2021). These observations are consistent with research on post-crisis consumption patterns, which indicates that consumers tend to maintain selected purchasing habits while optimizing expenses and seeking value (Mróz, 2016; Celinska-Janowicz, Dolega, 2024). Furthermore, the emergence of "smart shopping" behaviour confirms that consumers rationalize their choices without fully abandoning non-essential consumption (Mróz, 2010; Mróz, 2016). Recent analyses suggest that the "lipstick effect" is not a fixed concept, but one that evolves with changing circumstances (Morris, 2022). Additionally, modern consumer behaviour is increasingly shaped by digitalization and influencer marketing, which significantly affect purchasing decisions, especially in the cosmetics sector (Ratajczak et al., 2023; Prusak et al., 2022; Matiukaite et al., 2024).

The aim of the article: to explore the lipstick economy in Lithuania and Poland, analysing consumer behaviour and trends while comparing the two markets.

Objectives of the article:

1. To analyse the concept of the "lipstick economy" and its relevance in Lithuania and Poland.
2. To compare survey data from both countries, highlighting similarities and differences in consumer behaviour.
3. To identify key trends influencing consumer choices during economic fluctuations.

Methods: analysis of theoretical sources, comparative analysis, case study.

2. Analysis of original research

Consumer behaviour is influenced by various economic conditions, especially during financial crises. When faced with economic uncertainty, individuals adjust their spending habits, balancing essential needs with discretionary purchases. This study explores how consumers in Poland and Lithuania respond to financial difficulties, particularly in the context of purchasing affordable luxuries. The analysis covers several key aspects: changes in consumer behaviour during economic downturns, the psychological and emotional role of small luxury purchases, the influence of advertising and social factors on spending decisions, and strategies for financial planning in uncertain times. The findings provide insights into how consumers prioritize their expenditures, the extent to which they rely on marketing and promotions, and their approaches to balancing savings with indulgences.

2.1. Consumer behaviour during economic crisis

The chart illustrates consumer purchasing behaviour in Poland and Lithuania during an economic crisis. It compares the percentage of respondents who would continue buying familiar products, opt for cheaper alternatives, or stop purchasing certain items altogether. The data highlights differences in price sensitivity and adaptability between consumers in both countries.

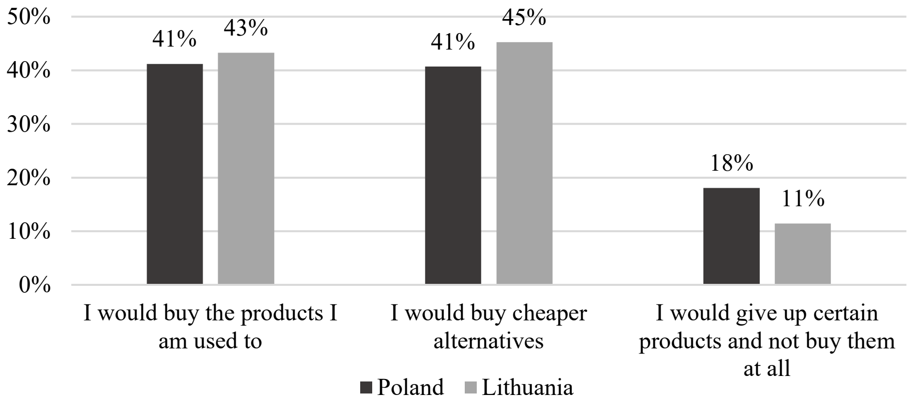

Figure 1. Consumer behaviour during economic crisis in Poland and Lithuania
Source: own work based on figures from the authors' study.

The analysis of consumer behaviour in Poland and Lithuania during an economic crisis reveals differing approaches to purchasing decisions. The survey results indicate that a significant portion of respondents in both countries would continue buying the products they are accustomed to, with 41% of Poles and 43% of Lithuanians expressing this preference. This suggests a strong attachment to familiar brands and products, even in times of financial strain.

At the same time, many consumers indicated a willingness to seek cheaper alternatives. This trend is particularly noticeable in Lithuania, where 45% of respondents stated that they would opt for more affordable products, compared to 41% in Poland. This suggests that Lithuanian consumers may be slightly more price-sensitive when faced with economic challenges.

Another notable group of respondents expressed that they would give up certain products altogether. Here, 18% of Polish respondents and 11% of Lithuanians indicated that they would stop purchasing some items. This difference suggests that Polish consumers may be more inclined to reduce consumption in response to economic hardship, whereas Lithuanians are more focused on switching to lower-cost alternatives rather than cutting out purchases entirely.

The chart presents how financial difficulties influence consumer behaviour in Poland and Lithuania. It compares the frequency with which respondents treat themselves to small or cheap purchases as a way to cope with stress, ranging from frequent indulgence to strict saving. The data highlights differences in spending habits and financial coping strategies between consumers in both countries.

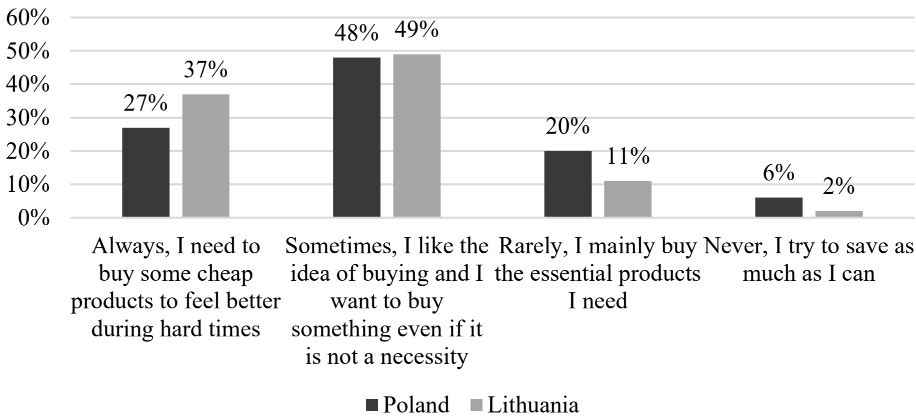

Figure 2. When facing financial difficulties, how often do you tend to treat yourself with small/ cheap purchases?

Source: own work based on figures from the authors' study.

The data presented pertains to responses to the question, "When facing financial difficulties, how often do you tend to treat yourself with small or cheap purchases?" The responses were divided into four categories: Always, Sometimes, Rarely, and Never.

In Poland, 27% of respondents indicated that they always feel the need to buy cheap products to feel better during hard times. The majority, 48%, stated that they sometimes like the idea of buying and want to purchase something even if it is not a necessity. A smaller group, 20%, rarely make such purchases, focusing mainly on essential products. Only 6% reported that they never indulge in such purchases and instead try to save as much as possible.

In Lithuania, 37% of respondents answered that they always need to buy some cheap products for comfort during financial hardships. A slightly higher percentage than in Poland, 49%, stated that they sometimes like to buy non-essential items. Only 11% rarely buy non-essential products, and just 2% reported that they never make such purchases.

When comparing the responses from both countries, it is evident that Lithuanians are more likely than Poles to always seek comfort in small purchases during difficult financial times. However, both groups show a strong inclination toward sometimes making such purchases, with over half of respondents in each country selecting this option. The percentage of individuals who rarely or never indulge in such purchases is higher in Poland, suggesting a slightly more cautious approach to spending during financial difficulties.

Overall, the findings illustrate varying strategies adopted by consumers in Poland and Lithuania when facing financial difficulties. While many prioritize continuity in their purchasing habits, a significant portion is willing to adjust their choices, whether by opting for cheaper alternatives or reducing consumption altogether. These insights highlight the importance for businesses to adapt their pricing and product strategies to align with evolving consumer behaviours during economic downturns.

Figure 3 shows data on what portion of the budget respondents are willing to spend on non-essential expenses during the recession. The responses are divided into five categories: Up to 10% of my income, 10–20% of my income, 20–30% of my income, Over 30% of my income and I would allocate nothing.

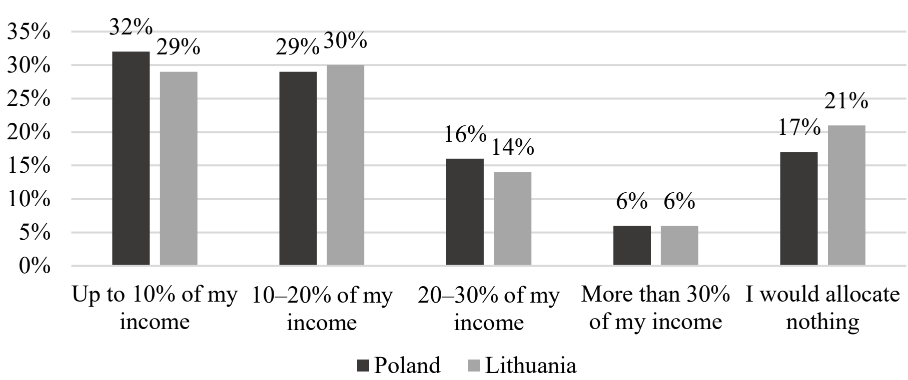

Figure 3. What proportion of your budget would you allocate to non-essential items during an economic recession?

Source: own work based on figures from the authors' study.

The data reveal that the majority of respondents in both countries – 30 in Lithuania and 29% in Poland – would allocate between 10% and 30% of their income to non-essentials during a recession. This underscores the general tendency in both countries to maintain moderate spending on non-essentials even in difficult financial times. A significant portion of people in both Lithuania and Poland, 29% and 32% respectively, indicated that they would allocate only up to 10% of their income to non-essentials. This suggests that cautious spending habits are fairly common. However, a notable minority of respondents would refrain from spending money on non-essentials altogether: 21% in Lithuania and 17% in Poland. This indicates a greater propensity among Lithuanians to eliminate discretionary spending altogether in the face of financial challenges. At the other end of the spectrum, a smaller group of respondents are willing to dedicate a larger share of their income to non-essential spending. In Poland, 16% of respondents said they would spend 20–30% of their income, compared to 14% in Lithuania. Additionally, only 6% of respondents in both countries are willing to spend more than 30% of their income on non-essential items.

These results suggest that while both countries exhibit similar spending patterns in some categories, Lithuanians appear to be slightly more conservative, with a larger proportion opting to eliminate non-essential spending altogether or to limit it to a minimum. Poles, on the other hand, are slightly more willing to allocate a moderate portion of their income to discretionary expenses. This difference may be due to cultural attitudes toward financial security or different levels of economic resilience and disposable income in the two countries.

2.2. The Role of Affordable Luxuries in Consumer Well-being

The next chart shows non-essential items that would be important to respondents during an economic recession and that would be difficult to give up completely. Participants were able to choose from several categories: cosmetics and personal care products, entertainment (cinema, concerts and other recreational activities), sweets and confectionery, clothing and accessories, and tobacco, alcohol and fuel. While these are not essential goods for survival, their importance varies according to lifestyle, culture and individual habits.

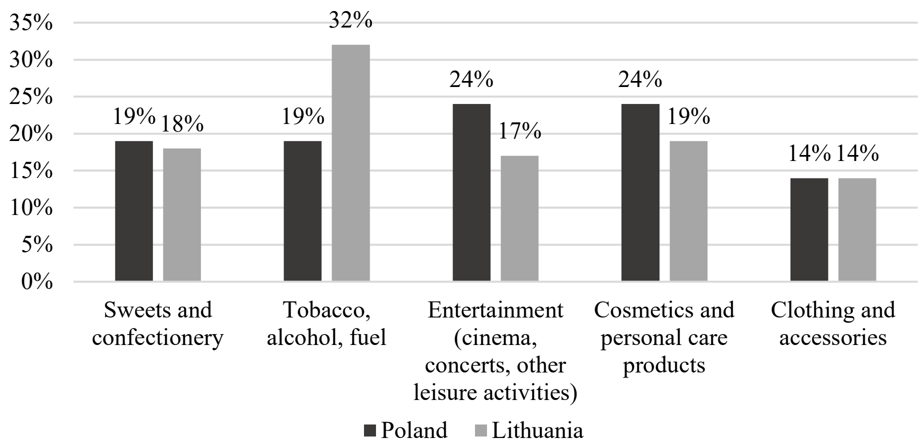

Figure 4. Which non-essential items would be important to you during an economic recession and difficult to completely give up?

Source: own work based on figures from the authors' study.

The results from Lithuania clearly show that the most difficult category to give up is tobacco, alcohol, and fuel, with as many as 32% of respondents selecting this option. This suggests that habits such as smoking and alcohol consumption, as well as practical transportation needs, play a significant role in daily life. The second most important categories are cosmetics and personal care products, along with entertainment, both chosen by 19% of respondents. This indicates that maintaining personal appearance and having access to leisure activities remain essential for many, even during financial hardship. Sweets and confectionery received 18% of the votes, showing that while they are a valued part of daily life, they could be reduced if necessary. Clothing and accessories were ranked the least important, with only 14% of respondents selecting them, suggesting that purchasing new clothes is not a priority in difficult times. In Poland, the distribution of preferences is slightly different. The most important categories are cosmetics and personal care products, along with entertainment, both receiving 24% of the responses. This suggests that Poles place greater emphasis than Lithuanians on maintaining their appearance and having access to enjoyable leisure activities. The second most significant categories are sweets and confectionery, as well as tobacco, alcohol, and fuel, both receiving 19% of the votes. This shows that these goods are less of a priority in Poland compared to Lithuania, where tobacco, alcohol, and fuel were considered far more essential. The least important category in both countries was clothing and accessories, with 14% of respondents indicating it as difficult to give up, suggesting that, during an economic downturn, consumers tend to cut back on clothing purchases first.

When comparing the two countries, some clear differences emerge. Lithuanians place much greater importance on tobacco, alcohol, and fuel, possibly due to consumption habits or a higher dependency on personal transportation. In contrast, Poles are more likely to prioritize cosmetics and entertainment, which may reflect a stronger emphasis on personal appearance and leisure activities. A common pattern in both countries is the relatively low importance of clothing and accessories, suggesting that in challenging economic times, people tend to reduce spending on fashion in favour of other, more valued categories.

The chart examines consumer perceptions in Poland and Lithuania regarding the impact of small luxury purchases on mood and confidence. It compares the percentage of respondents who believe such purchases have a positive effect, those who are unsure, and those who see no impact. The data highlights differences in attitudes toward indulgent spending between the two countries.

The data presented pertains to responses to the question, "Do you believe that small luxury purchases like cosmetics, sweets, or accessories have a positive impact on your mood or confidence?" The responses were divided into four categories: Agree, Partly Agree, Disagree, and I don't have an opinion.

In Poland, 30% of respondents agreed with the statement, suggesting that they believe small luxury purchases do positively affect their mood or confidence. The majority, 40%, partly agreed, indicating that while they may see some benefit in such purchases, they are not fully convinced. A smaller group, 15%, disagreed, reflecting that they do not believe these purchases have a positive impact. Interestingly, 15% of Polish respondents also indicated that they didn't have an opinion on the matter.

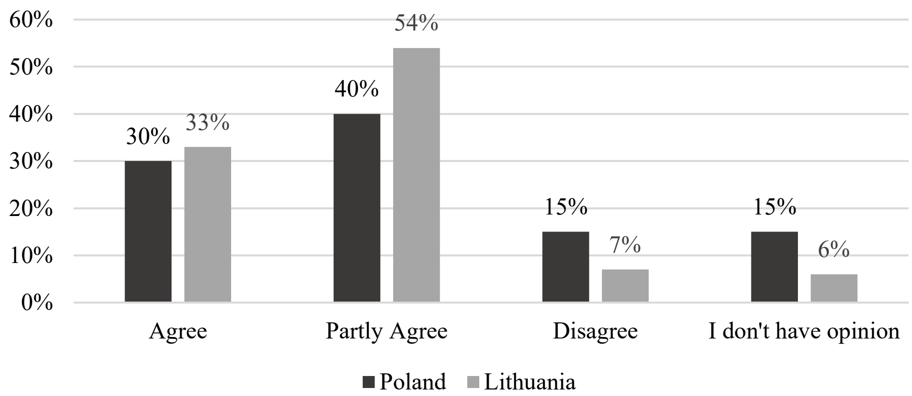

Figure 5. Do you believe that small luxury purchases like cosmetics, sweets or accessories have a positive impact on your mood or confidence? (%)

Source: own work based on figures from the authors' study.

In Lithuania, 33% of respondents agreed with the statement, showing a slightly higher belief in the positive impact of small luxury purchases compared to Poland. A larger portion, 54%, partly agreed, suggesting that more people in Lithuania have a nuanced view of these purchases, acknowledging some benefits without full conviction. Only 7% disagreed, and just 6% did not have an opinion, indicating less uncertainty compared to Poland.

When comparing both countries' responses, it is clear that Lithuanians are more likely to agree or partly agree with the statement. In total, 87% of Lithuanian respondents either agreed or partly agreed, compared to 70% in Poland. This suggests that Lithuanians are more inclined to believe that small luxury purchases can positively impact mood or confidence. A smaller percentage of both countries (around 15% each) disagreed or lacked an opinion, highlighting that there is a relatively low level of scepticism or uncertainty about the question. The overall trend shows a general tendency in both countries to see some benefit in small luxury purchases, although Lithuanians seem more convinced of their positive impact.

The chart explores how economic conditions influence spending on beauty and luxury products in Poland and Lithuania. It compares the percentage of respondents who significantly adjust their spending, those who make partial changes, and those who remain unaffected. The data highlights differences in economic sensitivity and spending habits between consumers in both countries.

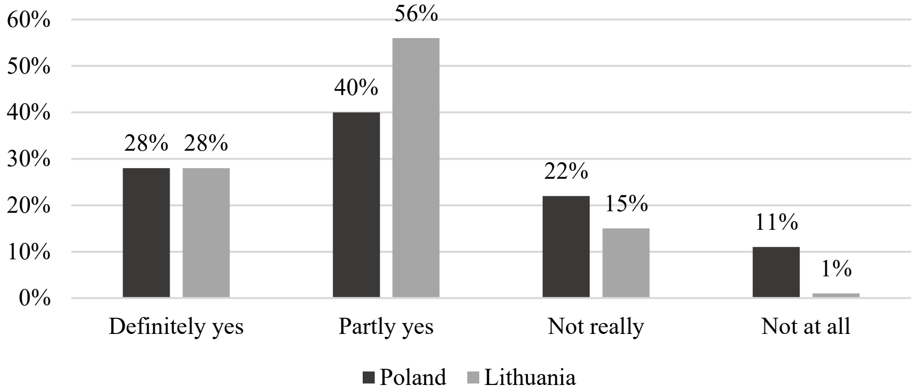

Figure 6. In your opinion, does the current state of the economy influence your spending habits on beauty or luxury items? (%)

Source: own work based on figures from the authors' study.

The chart presents responses to the question, "In your opinion, does the current state of the economy influence your spending habits on beauty or luxury items?" The data is split by two countries: Poland and Lithuania, with responses categorized as "Definitely yes," "Partly yes," "Not really," and "Not at all."

In Poland, 28% of respondents said that the economy definitely influences their spending on beauty or luxury items. A significantly larger portion, 40%, partly agreed, indicating that while the economy has some effect, it is not the sole factor influencing their purchasing habits. Only 22% of Polish respondents claimed that the economy does not really impact their spending habits, and just 11% said it has no effect at all.

In Lithuania, 28% of respondents answered that the economy definitely influences their spending on luxury or beauty items, a similar proportion to Poland. However, a much larger percentage, 56%, partly agreed, showing a stronger belief in the impact of the economy on spending. Only 15% of Lithuanians claimed that the economy does not really affect their purchases, and just 1% answered that it does not affect them at all.

When comparing both countries, we observe that a larger portion of Lithuanian respondents (56%) partly believe the economy influences their spending, compared to 40% in Poland. The percentage of people who feel that the economy definitely influences their purchases is slightly higher in Poland (28%) than in Lithuania (28%), but the difference is minimal. In general, the majority of both Polish (67%) and Lithuanian (84%) respondents acknowledge some level of influence from the state of the economy on their spending habits. The data suggests that while there are variations in the degree of influence, the overall trend shows that both Polish and Lithuanian respondents are notably affected by the current economic situation when it comes to luxury and beauty item purchases.

The next chart illustrates how consumers in Poland and Lithuania perceive "affordable luxury" products during times of economic uncertainty. It highlights differences in attitudes toward small indulgences and discretionary spending during financial instability.

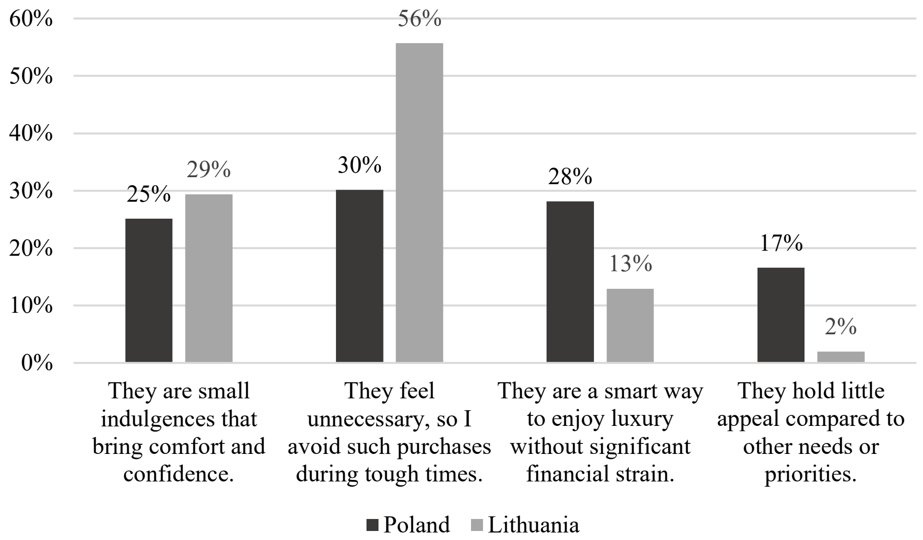

Figure 7. Consumer perception of "affordable luxury" during economic uncertainty
Source: own work based on figures from the authors' study.

The results indicate that 25% of Polish respondents and 29% of Lithuanians view affordable luxury as small indulgences that bring comfort and confidence. Meanwhile, a significant portion of consumers – 30% in Poland and 56% in Lithuania—consider such purchases unnecessary and prefer to avoid them during economic hardships.

A notable share of Polish consumers (28%) see affordable luxury as a smart way to enjoy luxury without significant financial strain, whereas only 13% of Lithuanians share this view. Additionally, 17% of Polish respondents and just 2% of Lithuanians state that such products hold little appeal compared to other financial priorities.

Overall, the findings suggest that Lithuanian consumers are more likely to cut back on affordable luxury purchases in difficult economic times, while Polish consumers show a more balanced perspective, recognizing both the necessity of cutting back and the potential benefits of small indulgences.

2.3. Influence of advertising and social factors on purchasing decisions

The next chart illustrates the key factors that influence consumer decisions to purchase small, affordable luxuries during economic downturns in Poland and Lithuania. It highlights differences in motivations between the two groups.

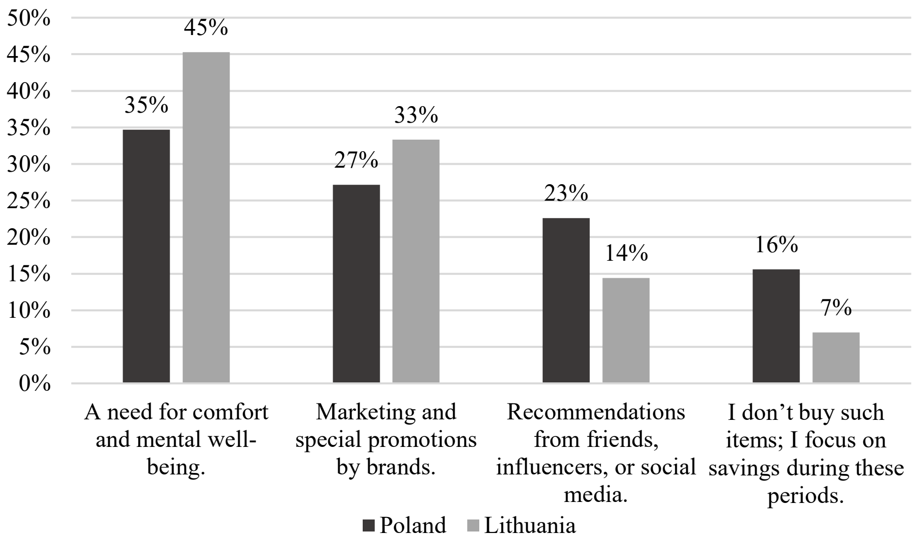

Figure 8. Factors influencing the purchase of small, affordable luxuries during economic downturns

Source: own work based on figures from the authors' study.

The most significant factor for both countries is the need for comfort and mental well-being, cited by 35% of Polish respondents and 45% of Lithuanians. Marketing and special promotions by brands also play a crucial role, influencing 27% of Poles and 33% of Lithuanians.

Social influences, such as recommendations from friends, influencers, or social media, affect 23% of respondents in Poland but only 14% in Lithuania. Additionally, some consumers prefer to avoid such purchases entirely and focus on savings instead—this is the case for 16% of Poles and only 7% of Lithuanians.

Overall, the findings suggest that emotional well-being is a strong driver of small luxury purchases, particularly in Lithuania, while Polish consumers are more influenced by social recommendations and are more likely to prioritize savings during economic uncertainty.

Research on the perception of small pleasures during economic hardships, conducted in Poland and Lithuania, reveals that for the majority of respondents, such expenses are not a priority, although there are notable differences between the two countries.

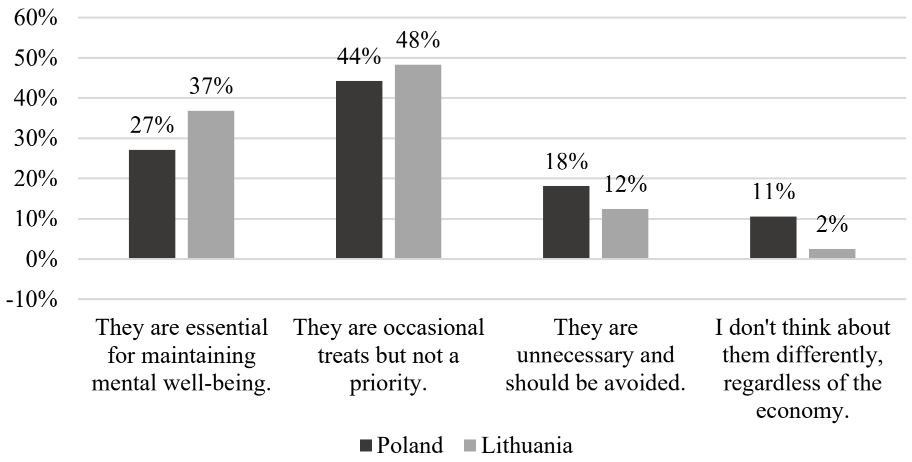

Figure 9. How do you perceive small, affordable luxuries (e.g., books, treats, or accessories) during economic challenges?

Source: own work based on figures from the authors' study.

In Poland, the largest group of respondents (44.22%) considers small pleasures to be occasional indulgences, primarily used to boost mood, but not essential during financial difficulties. Similarly, in Lithuania, 48.26% of respondents share this view, indicating that these expenditures take a backseat to more essential needs.

The second-largest group in both countries highlights the importance of small pleasures for maintaining well-being. In Poland, 27.14% of respondents state that these minor luxuries are an important part of life, even in challenging times. In Lithuania, this percentage is notably higher at 36.82%, suggesting that Lithuanians may place greater value on small comforts as a means of enhancing their quality of life.

Conversely, 18.09% of respondents in Poland believe that small pleasures are unnecessary and should be sacrificed during economic difficulties. In Lithuania, this perspective is less common, with only 12.44% of respondents sharing this opinion. These findings indicate that Poles are more likely than Lithuanians to limit spending on non-essential items. The smallest groups in both countries are those who maintain their approach to small pleasures regardless of economic conditions – 10.55% in Poland and just 2.49% in Lithuania.

Research conducted in Poland and Lithuania on the impact of spending on small pleasures during economic crises reveals both similarities and differences in respondents' attitudes.

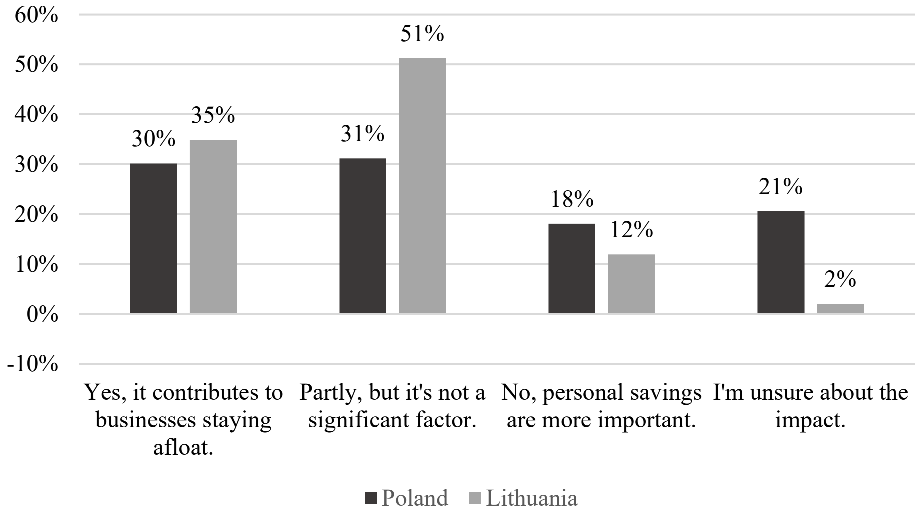

Figure 10. Do you believe spending on small luxuries helps support the economy during financial crises?

Source: own work based on figures from the authors' study.

In Poland, the largest group of respondents (31.16%) believes that spending on minor luxuries can have a positive, though limited, effect on the economy. Similarly, a significantly larger share of Lithuanians (51.24%) holds this view, indicating even greater awareness in Lithuania that such expenditures support local businesses, even if their overall impact on the economy is considered minor.

Slightly smaller groups in both countries think that small indulgences play a vital role in sustaining economic activity, especially for small businesses. In Poland, 30.15% of respondents share this belief, compared to 34.83% in Lithuania. These results suggest that people in both countries recognize the role of such spending in supporting small enterprises, although this perception is stronger in Lithuania.

A smaller percentage of respondents prioritize saving over spending on pleasures during a crisis. In Poland, 18.09% of respondents express this viewpoint, compared to only 11.94% in Lithuania. This difference could indicate greater pragmatism among Poles during tough times and a stronger commitment among Lithuanians to supporting the economy through consumption, even in small ways.

The smallest groups in both countries consist of those uncertain about the economic impact of spending on small pleasures. In Poland, 20.60% of respondents are unsure, while only 1.99% of Lithuanians express this uncertainty. This disparity may stem from greater economic knowledge or more decisive views among Lithuanian respondents on this topic.

Next, the following data shows the role of advertising in the decision to purchase affordable luxury goods during the economic downturn. The relationship between companies' marketing and consumers' decisions to buy a particular product is shown.

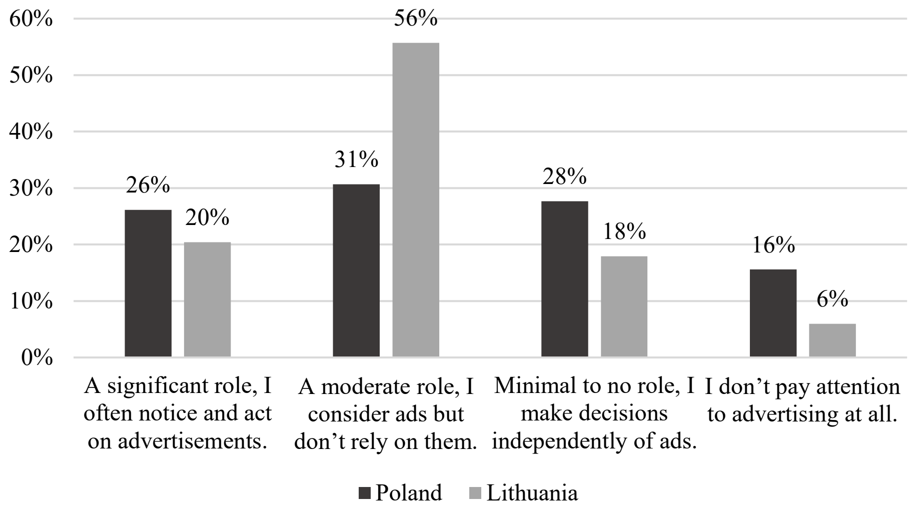

Figure 11. What role does advertising play in your decision to buy affordable luxury items during an economic downturn?

Source: own work based on figures from the authors' study.

In Poland, 26% of respondents said advertising plays a significant role in their purchasing decisions, while in Lithuania the figure was slightly lower at 20%. A larger proportion of respondents in both countries reported that advertisements play a moderate role, with 31% in Poland and a significantly higher 56% in Lithuania indicating that they consider ads but do not rely on them. This suggests that Lithuanians may be more influenced by advertising in their decision-making process compared to Poles. Meanwhile, 28% of respondents in Poland and 18% in Lithuania stated that advertising has minimal to no role in their purchasing choices, indicating a preference for independent decision-making. Additionally, a smaller portion of respondents reported that they completely ignore advertising. In Poland, 16% of individuals claimed that they do not pay attention to ads, while in Lithuania, this figure was only 6%.

These results suggest that while both groups acknowledge the influence of advertising, Lithuanians are more likely to consider advertisements in their purchasing decisions, particularly at a moderate level. Conversely, Poles appear to exhibit a slightly higher tendency to make independent decisions or disregard advertising altogether. These differences could stem from varying levels of trust in marketing, consumer habits, or cultural attitudes toward advertising in each country.

2.4. Spending strategies and financial planning in times of uncertainty

The chart below shows data on the frequency of planning purchases of small luxury goods during economic recessions. It highlights the differences in approaches to purchasing decisions in the two countries surveyed.

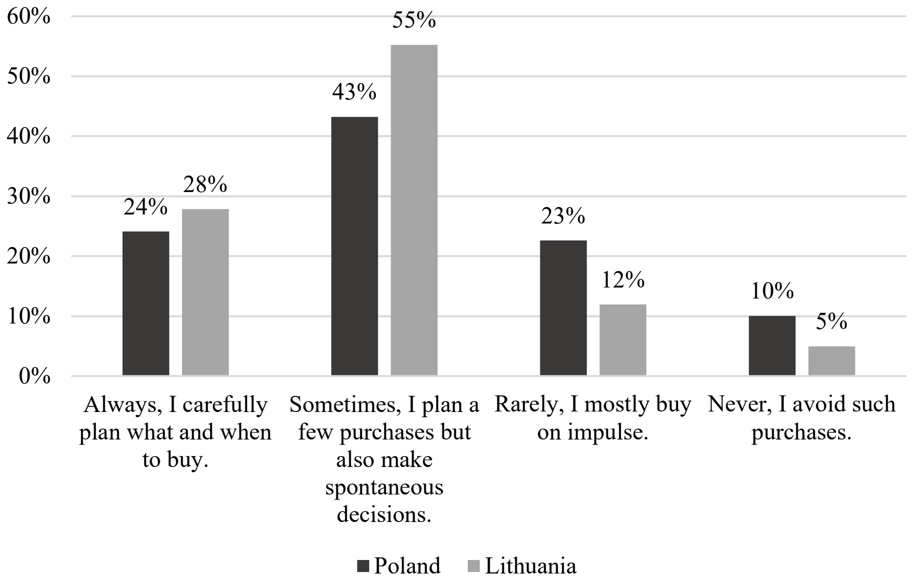

Figure 12. How often do you plan your purchases of small luxury items during economic recessions?

Source: own work based on figures from the authors' study.

A significant proportion of respondents – 28% in Lithuania and 24% in Poland – said they always carefully plan what to buy and when. This indicates a slightly stronger tendency among Lithuanians to be meticulous about such purchases. In addition, the largest group in both countries are those who sometimes plan their purchases, but still allow themselves to make occasional spontaneous decisions: 55% of Lithuanians and 43% of Poles fall into this category.

However, impulsive shopping is still present, especially in Poland. While 23% of Poles admit that they rarely plan and mainly make purchases on impulse, the figure is much lower in Lithuania, where only 12% of respondents say they buy luxury items spontaneously. This suggests that Poles may have a somewhat more relaxed approach to non-essential spending in difficult times.

At the most cautious end of the spectrum, a small minority of respondents avoid such purchases altogether – 10% in Poland and just 5% in Lithuania. This indicates that only a limited number of people in both countries completely forgo small luxury items, even in difficult financial times.

The analysis of spending on affordable luxuries during economic crises reveals differences between Lithuanians and Poles, as well as broader trends. The bar chart highlights country-specific approaches to balancing saving and spending, while the pie chart provides an overview of general financial preferences.

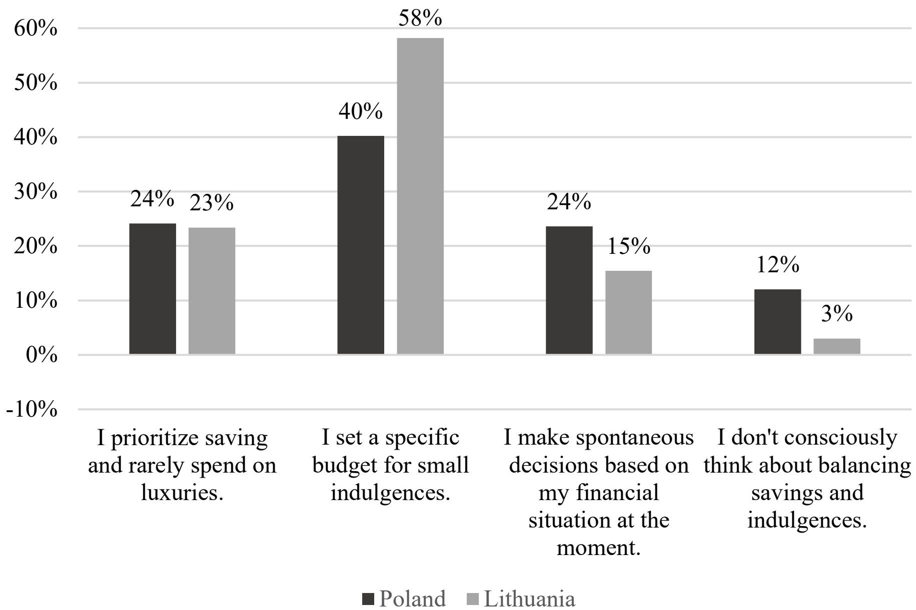

Figure 13. How do you balance spending on affordable luxuries with saving during economic crises?

Source: own work based on figures from the authors' study.

Lithuanians are more likely to plan a budget for small indulgences, with 58% choosing this option compared to 40% of Poles. Poles, on the other hand, show a more diverse approach – 12% do not consciously think about balancing savings and spending, whereas in Lithuania, only 3% fall into this category.

Spontaneous financial decisions are made by 15% of Lithuanians and 24% of Poles, indicating a greater tendency for reactive budgeting among Poles. Meanwhile, prioritizing savings over luxuries is similarly common in both countries – 23% of Lithuanians and 24% of Poles follow this cautious financial strategy.

The analysis of factors influencing the purchase of affordable luxuries during financial uncertainty reveals distinct preferences between Lithuanian and Polish respondents, as well as broader trends. The bar chart highlights country-specific variations, while the pie chart provides an overall perspective on consumer priorities.

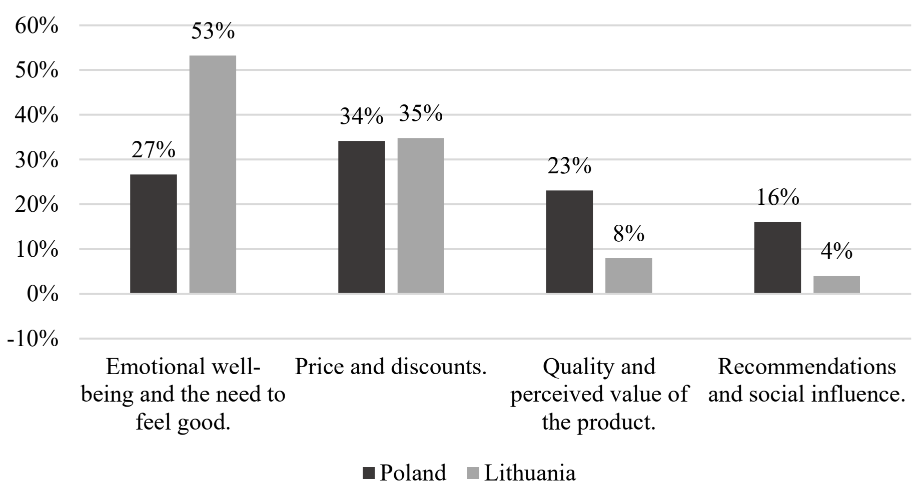

Figure 14. Which factor most affects your decision to purchase affordable luxuries during financial uncertainty?

Source: own work based on figures from the authors' study.

Lithuanians prioritize emotional well-being, with 53% selecting this factor, compared to 27% of Poles. This suggests a stronger focus on psychological benefits among Lithuanian consumers. In contrast, Polish respondents emphasize price and discounts (34%) and product quality and value (23%), whereas only 8% of Lithuanians consider quality a key factor.

The least influential factor is recommendations and social influence, chosen by just 4% of Lithuanians and 16% of Poles. While this plays a minor role overall, Poles appear slightly more influenced by external opinions.

These findings have key implications for businesses. Marketing strategies should emphasize emotional benefits for Lithuanian consumers while addressing price sensitivity and highlighting product quality for Polish audiences. Understanding these preferences can help tailor campaigns to better resonate with target markets, strengthening consumer engagement and driving sales.

Overall, the data highlight both similarities and subtle differences between the two nations. While planning is common in both Poland and Lithuania, Lithuanians appear to be somewhat more disciplined, with a higher percentage of respondents always planning their purchases and a lower tendency to buy on impulse. Poles, on the other hand, show a slightly greater willingness to make spontaneous purchases, even during economic recessions. These differences may be due to cultural attitudes toward financial discipline or to different levels of disposable income and economic resilience

3. Conclusions

The study analyses the "lipstick effect" and consumer behaviour in Lithuania and Poland during economic downturns. The results show significant differences between the two countries in their approaches to shopping during difficult economic times.

In both countries, a large proportion of consumers continue to buy familiar products during the crisis or switch to cheaper alternatives. This confirms the adaptive nature of consumer behaviour during economic downturns, where individuals seek to maintain stability while optimizing costs (Mróz, 2016). Lithuanians are more likely to make small, comforting purchases in the face of financial difficulties. This tendency corresponds with the stronger role of emotional and utilitarian factors in Lithuanian consumer decision-making processes (Ulbinaite et al., 2013), as well as with broader findings indicating that small luxury consumption contributes to maintaining psychological well-being (Magrizos et al., 2026). A key contribution of this study is the identification of relationships between results presented across different parts of the analysis. The frequency of small purchases is directly linked with the perceived impact on mood and confidence, indicating that higher purchase frequency is associated with stronger emotional benefits. Similarly, budget allocation corresponds with financial planning strategies, showing that Lithuanian consumers combine emotional consumption with structured financial planning, while Polish consumers demonstrate a more flexible and spontaneous approach. Furthermore, the importance of well-being as a key factor is closely related to the perception of affordable luxury products, confirming the central role of emotional drivers in consumer behaviour. Lithuanian consumers show higher sensitivity to economic conditions. This aligns with research on transition economies, where purchasing decisions are more strongly influenced by economic and structural factors (Vaiginiene et al., 2021; Vaiginiene et al., 2026). At the same time, Polish consumers demonstrate stronger influence from socio-demographic factors and brand engagement (Kacprzak, Dziewanowska, 2019; Razmus et al., 2020). Lithuanians also show a stronger tendency toward financial planning. This is consistent with studies on sustainable and rational consumption, which emphasize the importance of budgeting and value-oriented decision-making (Goryńska-Goldmann et al., 2023; Juszczuk, 2025). Overall, the study confirms that the lipstick effect is not a universal phenomenon but one that varies depending on economic, cultural and psychological context. In Lithuania, it takes the form of a structured and emotionally-driven coping mechanism, while in Poland it is more flexible and influenced by market-related factors such as price sensitivity, branding and social influence, including digital marketing and influencer activity (Ratajczak et al., 2023; Prusak et al., 2022; Matiukaite et al., 2024).

These differences reflect broader consumption patterns observed in Central and Eastern Europe, where consumer behaviour is shaped by both economic transformation and evolving cultural attitudes (Mróz, 2010, 2016). At the same time, the results indicate directions for future research. Further studies should focus on more detailed segmentation of the lipstick market and precise identification of consumer groups, as current research highlights a lack of specific data (Ratajczak et al., 2023). It is also necessary to deepen the analysis of digital marketing and influencer impact, especially among younger consumers (Prusak et al., 2022; Matiukaite et al., 2024). Additionally, future research should explore the relationship between the lipstick effect and sustainability trends, particularly in the context of eco-friendly consumption and willingness to pay for sustainable products (Hincica et al., 2024; Pileliene et al., 2024). Longitudinal studies could determine whether the lipstick effect is temporary or represents a long-term shift in consumer behaviour. Finally, further research should include psychological and demographic variables, such as compulsive buying tendencies, which significantly influence purchasing decisions (Tarka, Kukar-Kinney, 2022; Tarka, Babaev, 2021).

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